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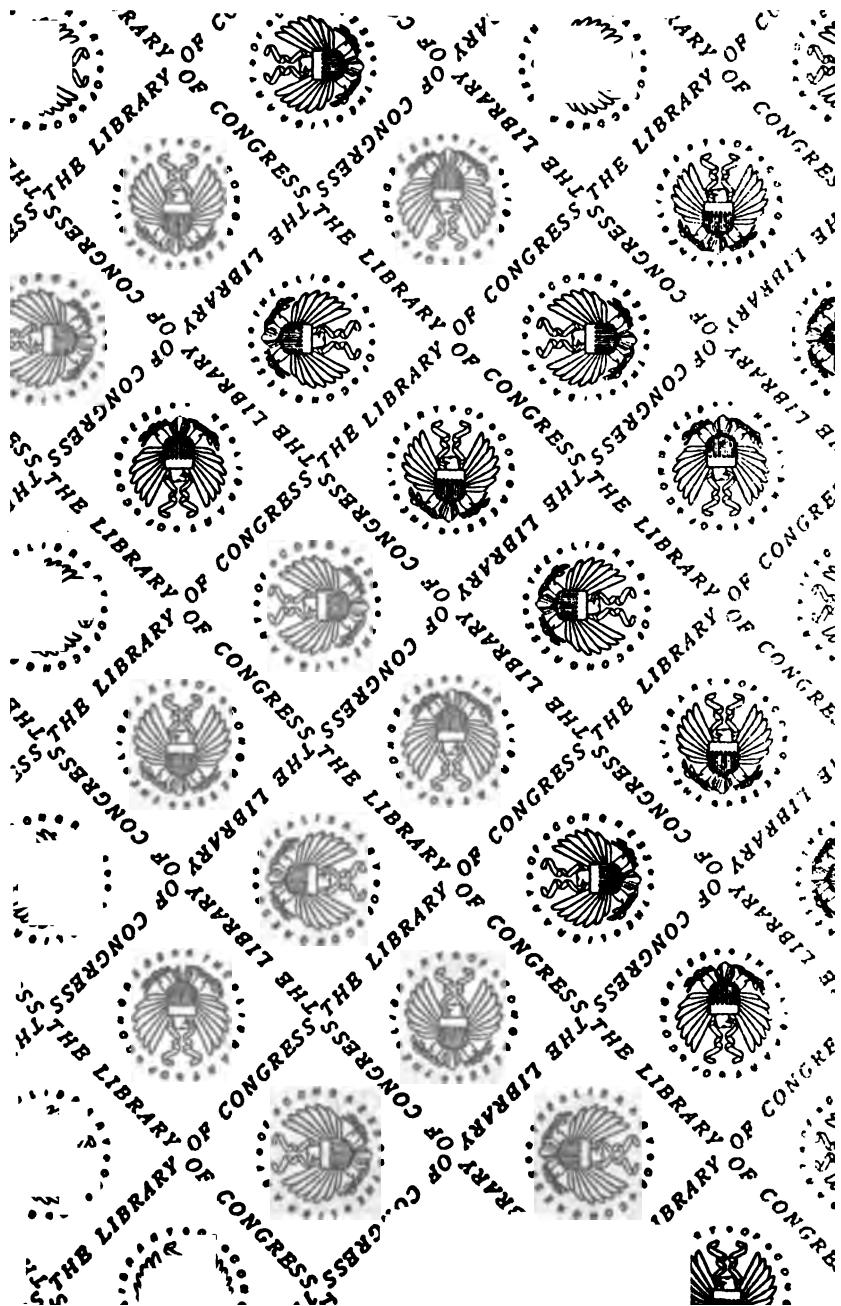
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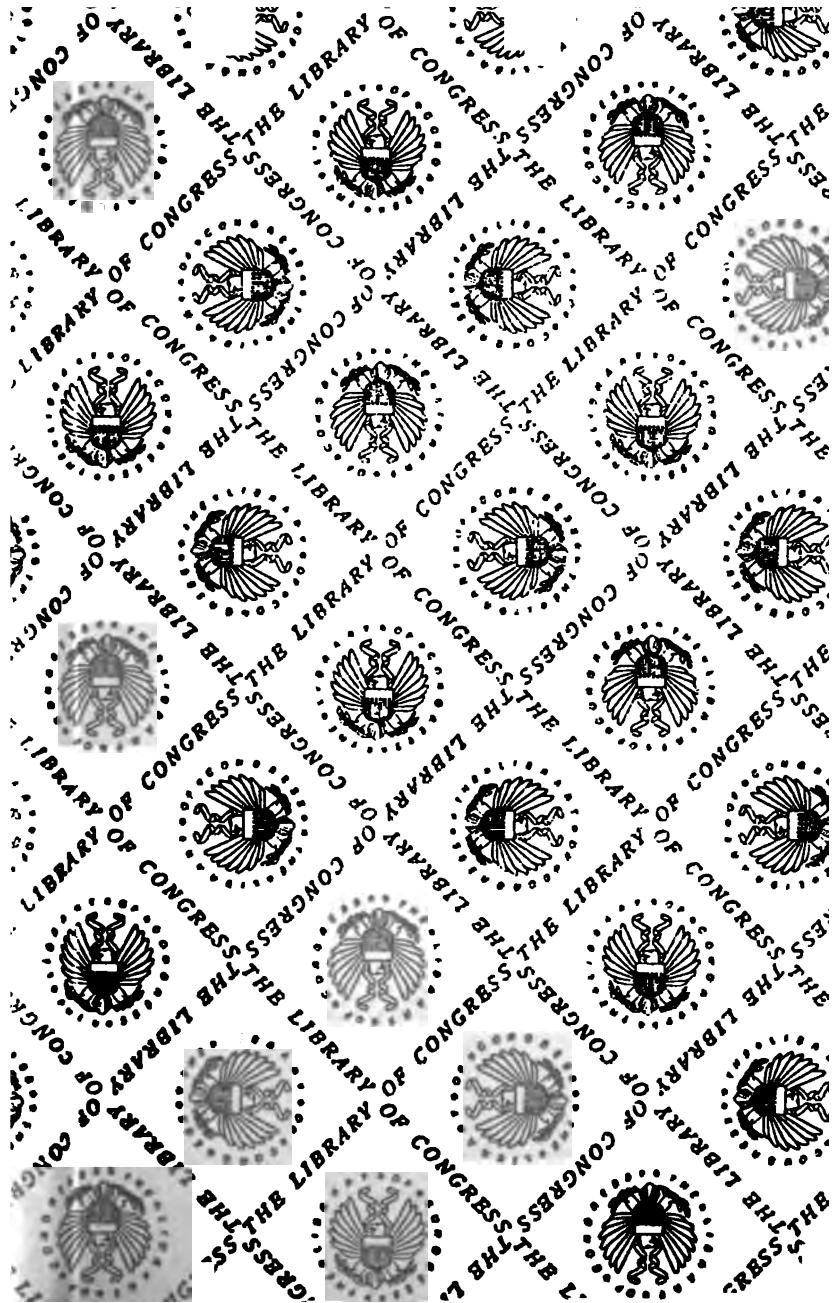
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DEPARTURE OF THE BALLOON.—*Puzzo*, 301.

# ANDRÉE'S BALLOON EXPEDITION

IN SEARCH OF

## The North Pole

BY

HENRI LACHAMBRE AND ALEXIS MACHURON

*(Andrée's Assistants in the Preparation, Equipment  
and Departure of the Balloon)*

WITH OVER FIFTY ILLUSTRATIONS



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TO  
S. A. ANDRÉE,  
*The Ardent Apostle of the*  
AËRIAL CONQUEST OF THE  
NORTH POLE  
*This Book is Dedicated with*  
*Loving Reverence*

HENRI LACHAMBRE  
ALEXIS MACHURON



# Andrée's Polar Expedition.

(1896-1897.)

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## INTRODUCTION.

IN the afternoon of Sunday, the 11th of July, 1897, the balloon "Ornen" left the port of Virgo, Spitzbergen, carrying in its car Messrs. Andrée, Strindberg and Fraenkel, the bold explorers, starting for the conquest of the North Pole.

All the papers of the day were immediately full of discussions in various strains—pessimistic or favourable comments and prognostications, articles full of hope or criticism, each, in short, looking upon this extraordinary expedition from his own point of view.

The first part of this bold enterprise is

## Introduction.

accomplished, and now we are confronted with the terrible question, Where are they?

Comments took their usual course. However, towards the middle of August we heard that one of the carrier pigeons belonging to Andrée's expedition had been killed on the 22nd of July by one of the seamen of the fishing-boat "Alken," between the Spitzbergen North Cape and the Seven Isles, in about 80° N. Lat. This pigeon carried a message, which was confirmed more than a month later when the whaler "Alken" returned to Hammerfest. It was couched in the following terms:

"13th July, 12:30 P. M., 82.2° N. Lat., 15.5° E. Long. Good progress towards the north. All goes well on board. This message is the third by pigeon.

"ANDRÉE."

Andrée, therefore, appears to have despatched three pigeons in less than three days, and the balloon seems to have covered dur-

ing this time a distance of scarcely 300 kilometres—which is accounted for by the calm which reigned on the second day.

No other trustworthy news has since come to hand. Much noise was made about a telegram originating from Krasnoiarsk, in Siberia, and which announced that a balloon believed to be Andrée's had been sighted on the 14th of September for a few minutes in the province of Jénisseisk.

This message was rather vague. Supposing that the balloon remained in the air for more than 60 days, which is still within the limits of possibility, it ought to have crossed, in order to arrive at that point, over 1000 kilometres of inhabited land without being perceived, which is rather doubtful. On the other hand, Andrée would not travel such a long way, in regions where communications are comparatively easy and where he could have enjoyed full safety, without effecting a landing and stopping on his journey.

Knowing the temperament of these heroes, who start with high courage towards the unknown in order to try to raise the veil which still hides those mysterious regions from mortal eyes—having read the narrative of the wonderful voyage of Nansen and his companions, shall we despair?

Has not Andrée already been highly favoured by chance and accident? Has he not already, in his career as an aéronaut, escaped perilous shipwrecks in which many others, perhaps, would have perished? Let us hope, then, that his lucky star will not forsake him, and that fortune, which favours the bold, will bring back to us, victorious, the three savants who have a full claim to our unstinted admiration.

I may add that the preparatory stages of the expedition were very troublesome; obstacles of all kinds, bad weather, and in particular, contrary winds, compelled the bold travellers to make two vain attempts before being

able to finally leave terra-firma and float in space towards this inaccessible pole, the search for which has already cost science so many illustrious lives.

In fact, a first expedition, organised in June, 1896, went to Spitzbergen, where they fitted up a balloon and all the plant necessary for its inflation, but after a long wait for the south-wind, which did not come, the explorers were compelled, as the season was too far advanced, to return to Europe.

Now, before narrating the preliminaries of the second expedition and commencing the story of our voyage across the polar sea, it seems expedient to briefly recapitulate the history of the Swedish expedition to which we have had the honour to belong, and to give some details as to the construction of the aërial ship and the work accomplished last year on the Danish isle.

In order to carry out such an undertaking in so short a time in the midst of innumerable

difficulties and in such an inhospitable country, there were so many obstacles to overcome that it was physically impossible to finish this great task in a season of scarcely two months, as the reader will be able to judge later on.

H. L.

## THE ENGINEER ANDRÉE.

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### BIOGRAPHICAL NOTES.

SALOMON-AUGUSTE ANDRÉE was born on the 18th of October, 1854, at Grenna, a little town in the province of Smoland. His father was a chemist. The rather severe training received at the hands of their father, imbued the children of the Andrée family, at an early age, with the spirit of obedience and punctuality. Their father died some years ago, and their mother, a distinguished lady, died in the spring of 1897.

After finishing his educational course young Andrée entered the Technical School, an institution which, in Sweden, corresponds to the École Polytechnic in France, but is exclusively intended for civil engineers, army en-

gineers' officers having a separate higher school. He chose the mechanical engineering section of the school, and left it an engineer; he thereupon worked for some time (as is frequently the custom in Sweden) as a simple mechanic in a workshop, sharing in every respect the life of an ordinary workman. Later on, he travelled abroad for purposes of study.

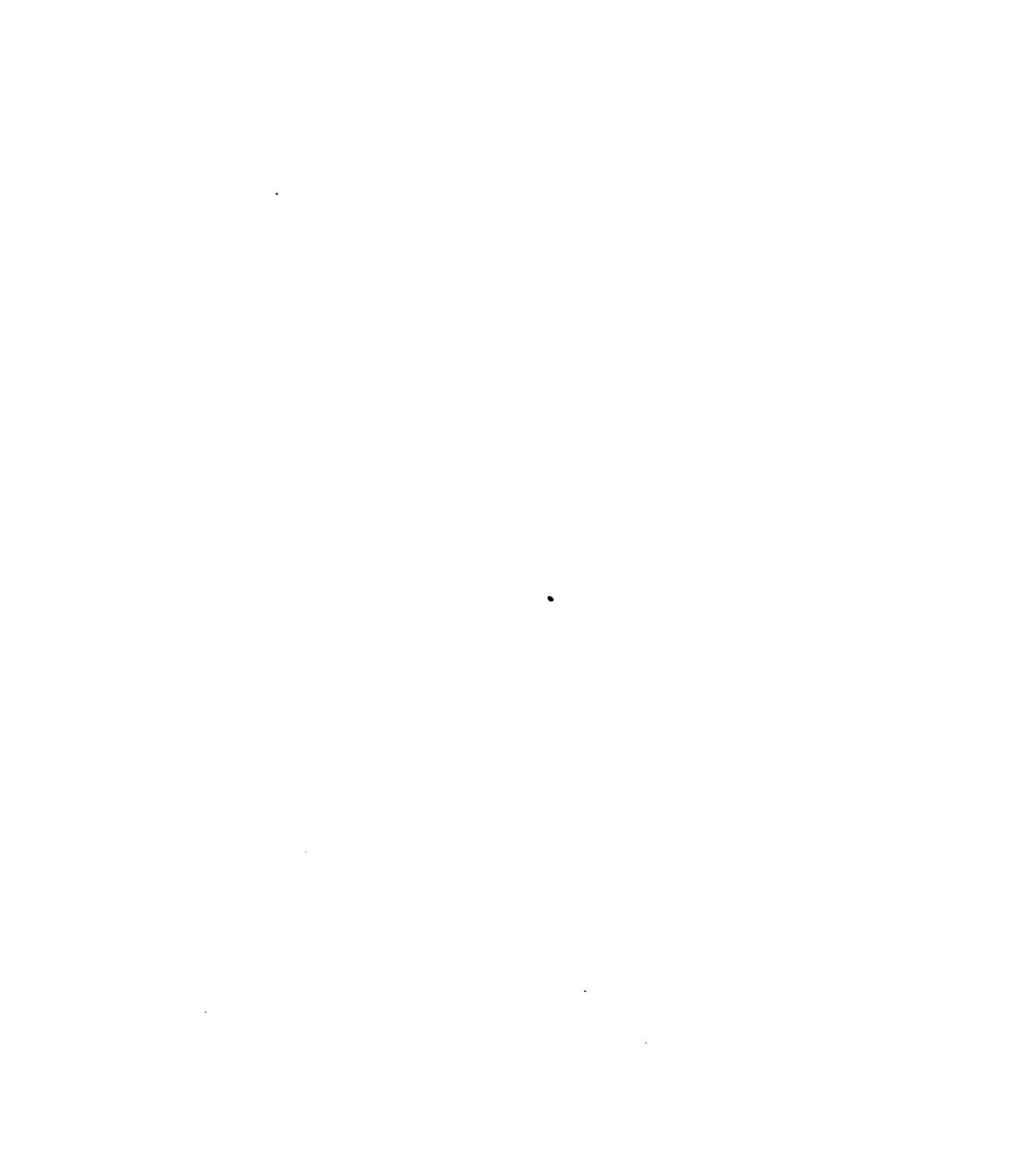
His knowledge, both theoretical and practical, procured him the distinction of being appointed, at the age of 26, assistant professor of pure and applied physical science, at the Technical School.

At the age of 28, in 1892, he took part in a Swedish meteorological expedition to Spitzbergen. He wintered there until the next year, directing the experiments and observations on atmospheric electricity.

In 1884, Andrée was appointed chief engineer of the Patent Office, being a newly created post, and from 1886 to 1889 he oc-



SALOMON-AUGUSTE ANDRÉE,  
ENGINEER,  
Commander of the Expedition.



cupied, at the same time, a professor's chair at the Technical School of Stockholm.

However, the management of the Patent Office, being a post of the highest importance, claimed all his time and energy, and Andrée found himself obliged to resign the professorship.

But he could not give up the idea of scientific aërostation, a problem which had always haunted his mind since his early youth.

The Swedish Academy of Science, which counts among its members famous men like A. Nordensjöld, G. Retzius, G. Mittaz-Leffler the mathematician, H. Hildebrand and O. Montelius the antiquarians, and others known and esteemed by the learned world, turned their attention to Andrée's projects, and in 1892 he received from the Academy and the "L. J. Hjerta Memorial Foundation" a subvention for the purpose of undertaking scientific aerial navigation, a course which was unprecedented in Sweden.

From that time Andréë devoted himself to aërial navigation, and he made his first ascent at Stockholm in the summer of 1893.

He has since made a number of ascents for scientific purposes, some of which were of a most perilous nature and resulted in a shipwreck in the Baltic; one, among others, carried him from Gothenburg over the Baltic, after having crossed over the whole of Sweden. The reefs around the Isle of Goëland placed the greatest difficulties in the way of his landing. This last attempt nearly cost Andréë his life, but these "little accidents" were not calculated to discourage a man of his temperament.

He made several experiments at steering by means of a guide-rope and a sail, and came to the conclusion that it would be possible to modify the course of the balloon even while keeping it at a low altitude.

Thereupon, early in 1895, Andréë presented to the Academy of Sciences a maturely con-

sidered project for exploring the regions of the North Pole with the aid of a balloon ; the start was to be made from Spitzbergen, where the inflation of the balloon was to be effected. The estimated cost amounted to 130,000 kroner (about 36,000 dollars).

A national subscription was opened, which was completed in a few days by four generous donors. Mr. A. Nobel, of lamented memory, subscribed 65,000 kroner. The King of Sweden, wishing to show the interest taken by him in the expedition, gave 30,000 kroner. Baron Dickson, well known for his liberality, also gave 30,000 kroner. The sum was completed by Mr. R. Lamm and some other donors. Mr. R. Lamm, moreover, undertook to supply all the mechanical parts of the various apparatus.

Having once settled the financial aspect of the question, Andrée made several journeys all over Europe, in order to enter into personal communication with foreign scientific

celebrities and gain them over in favour of his views as to this bold enterprise. He visited, one by one, the aëronautical establishments, procuring at the same time samples of the tissues employed, and obtaining the opinions of various constructors.

Thereupon, on his return to Stockholm, he carefully tested the samples which he had brought with him ; he felt interested in the English and German products, but gave the preference to the French industry, and finally fixed his choice on Chinese pongee silk, cemented together in double, three-fold, and four-fold layers, with varnish, this tissue having been advocated and experimented with for several years past by M. H. Lachambre, to whom Andrée entrusted the construction of the balloon on condition that M. Lachambre should follow the expedition to Spitzbergen, where he should give it the benefit of his experience.

## THE AÉRIAL VESSEL.

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### DESCRIPTION OF THE BALLOON FOR ANDRÉE'S POLAR EXPEDITION AND THE APPLIANCES CONSTRUCTED AT THE AÉROSTATIC WORK- SHOPS OF VAUGIRARD.

AFTER a long study of the question, Andrée decided to give to his balloon the cubical contents of 4500 metres, and the shape of a sphere terminating in a slightly conical appendage.

This sphere, fitted with two lateral regulating valves, one lower automatic valve and a "rending flap," measures 20.50 metres in diameter by 1321 metres surface; it is enclosed in a net of hemp cord, terminating in systems of "crowfeet" and suspending ropes attached to the car by means of a "load ring."

The upper part of the balloon is protected

against rain and snow by a varnished silk cover, the apex of which is fixed to the upper pole of the envelope, and the lower margin to the meshes of the net.

#### THE ENVELOPE.

For making up the envelope 600 pieces of pongee silk of best quality, each being from 17 to 18 metres long by about 48 centimetres wide, were used. From each of these a piece was cut off which was tried in both directions—that of the warp and that of the weft; thereupon the pieces were classified according to their strength, in order to be subjected to the operation of cementing or joining together.

All these pieces, after being cemented, were again tried before being used. The trials were made by means of a Perreux dynamometer, with strips 5 centimetres wide by 10 centimetres long, under the control of Messrs. P. de Nordenfeld and Noël, engineers of the Nordenfeld Company, to whom Andrée had



VIEW OF THE LOWER PORTION OF ANDRÉE'S BALLOON.



entrusted the task of testing the materials used for the construction of his balloon.

The tests gave the following results :—For double tissue, the breaking strains varied from 2400 to 3600 kilos per metre, for three-fold tissue from 3200 to 5500, and for four-fold tissue, made up of the best single pieces found, from 6000 to 7200 kilos per metre.

The minimum resistance demanded by Andrée was fixed at 1000 kilos per metre and per single thickness of pongee. This minimum was therefore greatly exceeded.

In accordance with their strength, the cemented pieces were classified methodically, for distribution over the surface of the balloon according to the strain to be undergone.

The upper part of the envelope is a disc 6 metres in diameter formed by 24 widths of four-fold silk. The adjoining part, consisting of three-fold silk up to 4 metres below the equator of the globe, is composed of 41 zones made up of 48 widths each.

The remainder of the ball, down to the lower parallel having a diameter of 7 metres, is of double material, being made up of 22 zones of 48 widths, and finally the lower part, including the appendage, is of three-fold silk and consists of five zones of 48 widths and three zones of 24 widths each.

The portions made up of three-fold and double pongee are joined together by an intermediate zone in which the various widths of material are alternately made up, half of three-fold and half of double tissue.

In each zone the various widths or pieces of material are identical in shape; 27 different templates had to be designed in order to determine the exact shape of the various pieces or widths of material, the total number of which is 3360. The cutting out of these pieces was effected with the aid of a cutting blade guided by a steel rule, following the outlines of a template; at first those belonging to one and the same zone were joined

together, and the zones were then joined so that the various pieces or widths overlapped each other in such a manner as to give the balloon the aspect of a structure of bricks or free-stone.

The cemented joints of the various pieces are each 16 millimetres wide. They are sewn by a machine, with three seams made with fine silk in the double or three-fold material, and four rows of stitches in the four-fold material.

These joints or seams are thereupon covered, outside and inside, with a strip of single silk 40 millimetres wide, cemented on with a special varnish which was recently discovered by M. Lachambre.

The strips cemented by this new process have the double advantage of rendering the seams impermeable and restoring to the joints the resistance of which the stitching had deprived them.

The varnish used for this cementing meets all desirable requirements, preserving to the

material its natural suppleness, being unaffected by the balloon varnish, which has linseed oil for its base, and being proof against water and changes of temperature.

The tests made with the joints thus constituted, proved that their resistance is greater than that of the adjoining parts; and André, who desired only an equal strength throughout, was naturally very well satisfied with this result.

The seams are 4400 metres long, with 3 or 4 rows of stitching representing a line of single stitching equal to a length of 14,000 metres, and the total length of the cemented strips is nearly 9000 metres.

The two hemispheres of the balloon were first formed. Their weight was 960 kilos, and before proceeding to the last equatorial closing seam, they were given three coats of Arnoul's varnish (the best balloon varnish hitherto tried); a fourth coat being given, after the two halves had been joined together,

on the premises of the “Palais du Champ de Mars” remaining from the 1889 Exhibition.

#### THE NET.

The net of the polar balloon is composed of 384 hemp cords,  $5\frac{1}{2}$  millimetres thick by 65 metres long, each having a breaking strain of not less than 396 kilos, (in the tests made the minimum result was 420 kilos, while the maximum was 540 kilos).

Each cord is without any splice ; its two ends are fixed at the upper pole to a cordage ring or crown measuring 69 centimetres in diameter and 6 centimetres in thickness. There are no knots in this net, the cords being interwoven at their crossing points, one being passed through the other ; it was in this way that the “Henri Giffard” captive balloon was finished in 1878.

The crossing points are strengthened by ligatures of fine twine.

The circumference of the net all the way

up consists of 192 meshes, the dimensions of which vary according to the area of the zone they are to cover. These meshes, the number of which is no less than 19,000, represent a length of twine amounting to nearly 15,000 metres.

The lower part of the net is formed by a system of three zones of crowfeet or cringles, each zone reducing by one-half the number of meshes composing the next upper zone.

The first row of crowfeet is mounted on thimbles of nickelized brass, the second and the third on wooden pulley blocks having sheaves of lignum-vitæ, and 48 suspending cords, each fitted at its end with an eye, complete the net and permit of tying it on to the retaining ring by means of toggles. These suspending cords have a diameter of 18 millimetres and a strength of no less than 3000 kilos.

The net thus constituted weighed 352 kilos. In order to preserve the cordage from moisture it was pregnant with vaseline, except in

the upper part which was covered with a protecting cover of varnished silk ; after this operation the weight of the net was 442 kilos.

Eight detachable equatorial cringles were fixed to the equator of the net. They were to serve for upholding the balloon, and preventing it from oscillating, in the shed which was to shelter it at Spitzbergen, while awaiting a favourable wind for the departure of the expedition.

#### PROTECTING COVER.

A spherical calotte of single silk, varnished with four coats and vaselined, and having an area of 145 square metres, covers the upper part of the balloon ; it is finished in the same way as the balloon, being composed of overlapping widths to the number of 720.

The seams having a width of 8 millimetres are hooked together, and sewn with two rows of stitching with silk thread ; they are not covered with cemented strips ; their total length is 600 metres.

The vertex of the protecting cover, of conical shape, is of double silk ; it rests on a small wooden structure, likewise of conical shape, and the base of which, placed on the material at the upper pole of the balloon, is surrounded and held in place by the crown of the net.

The lower zone, terminating the protecting cover, is of double silk. Its extreme edge is put round a hemp bolt-rope 10 millimetres in diameter, which is sewn into the material. Ninety-six eyes made above this bolt-rope are intended to receive thongs for fixing the protecting cover to the meshes of the net.

This protecting cover weighs 40 kilos. Its object is to protect the top of the balloon against rain, and more especially to prevent incrustation with snow between the meshes of the net.

#### VALVES.

The balloon has no valve at the top, more especially as its action would be likely to be



THE BALLOON IN THE 30-METRE GALLERY IN THE CHAMP DE MARS.



impeded by snow, but it is provided with two manipulating valves of equal dimensions, one being placed at the equator and the other one metre above the equator, at 150 degrees angular distance from each other.

These valves, of a system devised by Andrée, measure 25 centimetres in external diameter. They are each formed by a disc of aluminium bronze 23 centimetres in diameter, and under normal conditions are seated on a circular seat of walnut, but can be withdrawn therefrom by moving them along a screw which occupies the centre. This movement is effected from the car of the balloon by means of two cords for each valve, passing through the interior of the balloon, and issuing from it near the appendage through four tubes arranged in pairs.

Gas tightness is obtained by a circular rubber band, against which the outer margin of the valve disc rests. The orifice for the escape of gas measures 20 centimetres in di-

ameter. In order to fix the valves to the balloon, two openings, 21 centimetres in diameter, are made in the material. The margin around these openings is strengthened by collars 50 centimetres in diameter, of three-fold material, cemented and sewn on. The seat of each valve is applied internally to the material of the balloon, the margin of which is caught between two rubber bands, and thereupon pressed against the seat by an external wooden hoop and bolts.

These valves do not present any external projection against which the cord of the net might catch.

The automatic valve closing the appendage was suggested to Andrée by M. Lachambre and was adopted. It measures one metre in external diameter; the discharge orifice is 87 centimetres in diameter. The valve disc, of threefold pongee silk, is 91 centimetres in diameter. It is provided with two glazed windows in order to enable the aéronauts to inspect

the interior of the balloon. This disc, which is slightly conical, is fitted upon a walnut ring



ANDRÉE'S AUTOMATIC SAFETY VALVE.

which acts as a seat, in which it is held by the traction of six spiral springs of steel wire,

fastened on one side to the end of the wooden spokes of the valve, and on the other side to the top of a small frame fixed on the seat. The frame, mounted on the wooden ring or crown, is formed by 12 nickeled steel tubes.

The valve is guided in its course by a central steel tube, sliding in another tube which serves as an axis for the frame ; a small cotter limits its travel, the length of which is equal to one-half of the radius of the discharge orifice. The joint is rendered gas-tight at the periphery of the valve by means of a brass blade resting on a rubber band which is stretched in a groove of the seat.

The valve commences to open under the action of an internal pressure corresponding to a 10 millimetre water column. In order to fix it to the balloon it is placed into the interior of the appendage, the margin of which, placed between two rubber bands, is held tight against the seat by an external belt or ring of brass, fastened by bolts.

## “RENDING FLAP.”

The “rending flap” is 4.50 metres high and has a surface of 4 square metres. It is formed of a rectangle of pongee silk in three-fold layers, terminated by a curvilinear triangle, the point of which is directed upwards. Its vertical axis is at an angular distance of 105 degrees from each of the two manipulating valves ; the lower base, which is 90 centimetres wide, reaches down to 50 centimetres above the equator. The seams joining the material of the “rending flap” to that of the balloon are similar to the seams of the various widths and are likewise covered with cemented strips.

In the interior of the balloon the upper extremity of the “rending flap” is of four-fold silk ; its edge is put round a stick of hard wood to which a rope for pulling is fixed, by means of which the rent is made. This rope descends down to the car after having passed

through the lower part of the envelope, near the appendage, in a tube.

In order to make the rent with ease, which will require an effort equal to a traction of about 100 or 120 kilos, Andrée intends to use a small grapnel which he will attach to the end of this rope and throw to the ground at the proper moment.

Thereupon the balloon will be emptied very rapidly, and all dragging along the ground will be avoided, however violent the wind may be.

Of course Andrée will not make use of the "rending flap" until he is travelling over hospitable regions and wishes to terminate his aërial voyage and alight finally.

BANDS FOR PROTECTION AGAINST WATER—  
SUNDRY DETAILS.

Above the appendage, at the parallels measuring 5 and 7 metres respectively in diameter, there are fixed by one of their edges,

two vertical circular bands 10 centimetres high.

These bands are of single silk ; their purpose is to form gutters for deflecting the course of any water which might run down the material of the balloon, and thus to protect from rain the car in which the observers are stationed. In the interior of the appendage there is another band, differently placed, forming a circular trough intended to receive any water that might result from a strong condensation of the gases contained in the balloon, and thus prevent any accumulation of such water over the automatic valve. Between the external band of 5 metres in diameter and the appendage there is fixed, facing the tube through which the rending cord passes, the inflating nozzle, which is 6 metres long. The two cords which work each of the manipulating valves are operated upon by pulling : one, being that which opens the valve, is painted blue ; the other, which closes

the valve, retains the natural colour of the hemp.

The cord acting upon the "rending flap" is coloured red.

Along a meridian traced on the envelope marks are made in colour, with figures indicating every 500 metres of cubic contents of the segment above each mark; this would permit of rapidly ascertaining the progress of inflation at Spitzbergen. On two other meridians, suitably situated, are shown the positions for the straps to support the sails with which the polar balloon is to be provided.

#### THE CAR.

In the construction of the car, the use of iron or steel was prohibited, to avoid interfering with the action of the magnetic instruments. Its form is cylindrical, measuring two metres in diameter from centre to centre of its sides, which are of cane basket-work mounted on a frame-work of chestnut-wood;

eight handles of wicker-work are attached to the cylindrical part, at a convenient height, to facilitate its transportation. The bottom is strengthened by wooden cross-beams placed externally and fastened to the basket-work by bolts and brass plates put on the inside.

The cylindrical part is truncated on one side, having a plane surface which would form part of an inclined plane intersecting the lower floor of the car and extending from this floor to midway up the cylinder, the length of the chord formed by the plane intersecting the base being 1.30 metres.

When the balloon touches the ground, rolling of the car will be avoided by this flat surface, which will rest and drag on the ground.

Internally, the upper margin of the side is fitted all round with about 100 cords terminating in buckles or eyes. To these cords, which are passed through the basket-work, instruments and various objects were to be attached.

The roof of the car is a disc or cover, likewise

of basket-work, slightly convex in order to prevent any accumulation of water. The margin of the periphery of this cover forms a cavity into which the margin of the car is inserted, thus preserving its peculiar shape. Cross-pieces of wood fixed inside the cover or roof impart to it the necessary rigidity to support the observers; an opening closed by a trap-door moving on hinges, permits the entrance and exit of the travellers.

Above the flattened part, the cylindrical side of the car is fitted with two square windows with glass panes of 15 centimetres side; the bottom of the car has two square openings of 20 centimetres side, closed by wooden trap-doors.

The car is covered with tarpaulin, having openings corresponding to those in the basket-work.

The tarpaulin of the roof forms a vertical rim 10 centimetres in width, perforated with holes for draining off rain water. The car is

suspended by six hemp ropes, 30 millimetres thick. Their respective strength is from 8000 to 9000 kilos. They are interwoven with the basket-work, and joined together at the bottom of the car by a hexagon of rope.

Above the roof they are joined to each other by five horizontal ropes, placed at equal distances and forming a kind of balustrade one metre high, which was to be surrounded later on either with tarpaulin or with some other enclosing material.

The thickness of these horizontal ropes is 7 millimetres, except the uppermost rope which is 10 millimetres thick.

About two metres above the roof the hexagon formed by the six ropes is drawn together by a hexagon of rope-work measuring one metre inside diameter.

The upper end of the suspending ropes terminates in an eye or loop joining it to the ropes of the load ring.

On the circumference of the upper edge of

the car there are fastened six brass balls at equal distances from each other, forming the lower part of a system of ball links which are to carry a structure intended to support the scientific instruments. This structure was made at Stockholm, under the supervision of Andrée.

The fitting up and equipment of the car was also to be carried out under his supervision.

The aéronauts will generally be on the flooring of the roof for the purpose of making observations. The interior of the car forms their sleeping apartment, where they will each rest in turn.

#### MARKS OF THE EXPEDITION.

All the articles comprising the aérostatic equipment are marked with the words

*“ANDRÉE'S POLAR EXPEDITION, 1896”*

which are branded upon wooden articles,

engraved on metal goods and painted with a durable paint on the protecting cover, the envelope, the tarpaulin of the car and the ballast bags.

Some ropes of the net and the suspending ropes are fitted with small plates strongly fixed to them, on which the above mark is engraved.

The articles not affording sufficient space for the whole mark bear the abridged mark

*“AÉE'S PXP, 1896.”*

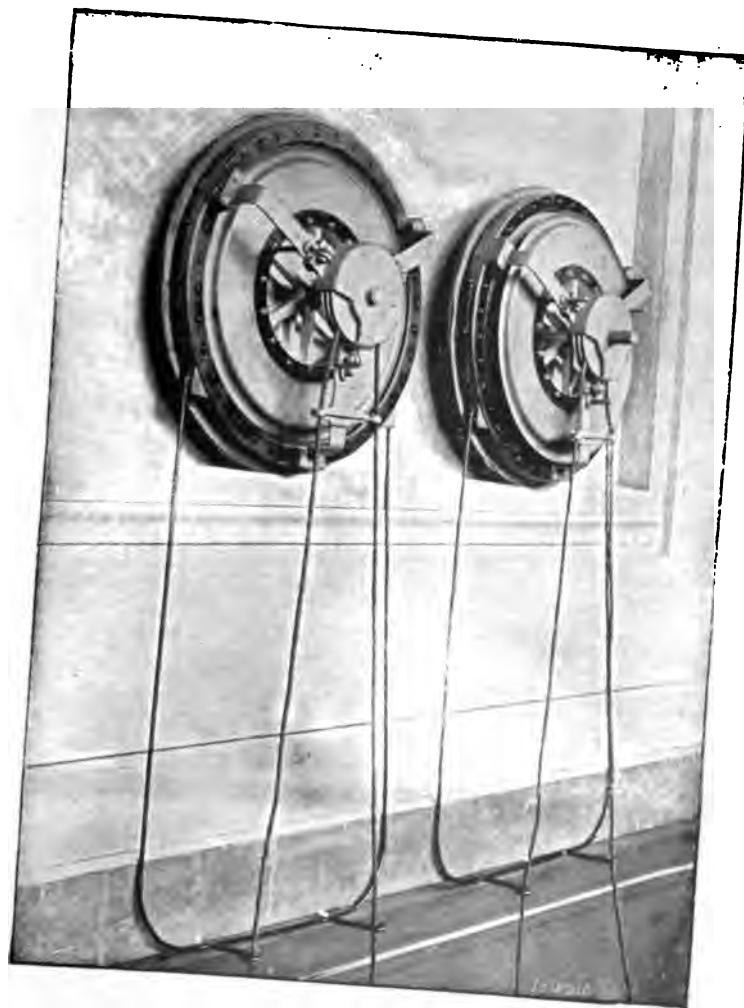
The following articles were made at Stockholm, *viz.*: the “load ring” connecting the balloon with the car, the provision basket, the guide-ropes, sails, etc., as well as the plant for making pure hydrogen gas, of which a description will be found later on. Only the gas-conducting pipes, which are of silk, and the ballast bags were manufactured at Paris, being supplied by the Vaugirard factory.

### Exhibition of the Equipment and Plant at the Champ de Mars.

(OLD BUILDINGS OF THE 1889 EXHIBITION).

The order for the articles described above was given by Andrée to M. H. Lachambre at the end of December, 1895, and delivery was to be effected between the 15th and 20th of May, 1896, failing which the purveyor made himself liable to an enormous progressive fine, in proportion to the number of days of delay, and if delivery was not made before the 3rd of June the order could be cancelled. But the work was executed within the stipulated time, and towards the end of April the whole plant was conveyed to the Champ de Mars, into the 30 m. gallery, in order to be examined there by the Commission.

According to a clause of the agreement the envelope was to be inflated with air, and before the last varnishing submitted to an internal pressure equal to a 75 m. water-column.



MANIFOLDING VALVES.



This trial took place on the 3rd of May in the presence of M. de Nordenfeld, engineer of the Nordenfeld Company, M. Gaston Tissandier, and of Colonel Renard and Commander Renard, managers of the Central Establishment of Military Aërostation of Chalais-Meudon. The openings of the balloon were provisionally closed, the valve in the appendage was replaced by a wooden hoop covered by a disc of material containing a glazed window 20 centimetres in diameter, thus permitting inspection of the interior of the balloon, the latter being inflated by means of a ventilator supplying about 2000 cubic metres of air per hour.

Andrée's experts, who had followed up the manufacture step by step, then examined minutely all the parts, and declared the material to be faultless and quite in accordance with the desires expressed by Andrée.

After this examination, which showed that the envelope inflated with air did not lose its

contents to any appreciable extent, the balloon was emptied and was then given the last coat of varnish. This having been done it was again inflated for the purpose of drying.

The net, suspended by the crown in the centre of the central dome, and with the suspending ropes attached to the balustrade of the first gallery, presented the appearance of a vast tent, the summit of which was 40 or 50 metres above the ground.

The car, the valves, and in short all the articles made at Paris were exhibited at Champ de Mars. A little balloon of 350 metres, inflated with air, and fully equipped, suspended by the side of the polar balloon, served for comparison. This exhibition, which was not arranged with a view to profit, was thrown open to the public from the 10th to the 14th of May.

The 10th of May was reserved for special guests, and M. Felix Faure, President of the Republic, was the first to honour us with his

visit. He was accompanied by General Tournier and Colonel Ménétrez. He took much interest in the various parts of the balloon, which he examined at length, and in the details of the construction. He expressed his best wishes and hoped for the good success of this interesting expedition, and also congratulated André on having given preference to a French maker for the manufacture of his balloon.

There were present at the same time as the President, M. de Nordenfeld, Swedish engineer, M. Gaston Tissandier, Colonel Renard and Commander Renard, who had also followed up the work in its various stages and had co-operated therein to a certain extent.

The Swedish colony was represented by M. Dué, the minister plenipotentiary, and by M. Gustav Nordling, vice-consul.

Among the other guests I may mention Messrs. Poubelle, Préfect de la Seine, Admiral Sallandrouze de Larmornaix, General Math-

ieu, M. Decauville, senator, and M. Coulet, solicitor to the Swedish Legation.

During the next four days over 30,000 persons came to see the *North Pole* balloon and expressed their good wishes for the success of the three bold Swedish explorers whose courage the whole world admires.

## FIRST PART.

### TWO MONTHS AT SPITZBERGEN.

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#### I.

#### THE DEPARTURE.

I LEFT Paris on the night of the 2nd of June, 1896, with my mind slightly depressed at the thought of leaving my family and my country, and my spirit a little troubled by the thought of the “immense unknown” which loomed before me. Revolving in my mind the pessimistic observations of M. Janssen, the advice of Lieut.-Col. Charles Renard and the opinions expressed by M. G. Tissandier, I was deep in thought, sometimes gay and sometimes sad, as to the fate of the expedition, and the responsibility I had undertaken weighed rather heavily upon me.

Without stopping at the various stages of my journey, Cologne, Hamburg, and Copenhagen, although these are very interesting towns, I arrived at Gothenburg, where I was received by Captain Andrée, brother of the explorer, and, although much fatigued by 40 hours' railway and boat travelling, my first visit was to the "Virgo," which was to be my home for several months and convey me towards the northern regions.

Andrée, who left nothing to chance, had well chosen his vessel, and it was his brother who superintended her equipment and loading.

When I arrived work was going on with feverish activity and it is almost impossible to conceive the quantity of goods which were stowed away in this small vessel of 300 tons. I was present at the embarkation of the barrels of sulphuric acid which had been brought from England.

We have a select crew, composed almost entirely of engineering students from the

Technical School at Stockholm and officers who have taken berths as ordinary sailors in order to follow the expedition ; one can see that brave and generous hearts will not lack any more than scientific heads.

On the morning of the 5th of June, the three explorers arrived from Stockholm. At night, a grand fête brought us together at Baron Dickson's, one of the generous promoters of the enterprise.

*Saturday Evening, June 6th* :—Popular fête at Lorensberg Park ; numerous speeches and enthusiastic toasts ; reading of telegrams and kind wishes for the success of the expedition ; the tables are adorned with magnificent bouquets of natural flowers enclosed in pyramids of ice ; the effect is most picturesque and this is certainly an idea which has never yet suggested itself, as far as I know, to the minds of the managers of our great culinary establishments ; I now give them the benefit

thereof. Nothing is more attractive than the picture of flowers and the flames of chandeliers reflecting themselves in these miniature icebergs.

*Sunday, June 7th* :—I arrived at the port at 8 A. M. The “Virgo” has been dressed in her gala bunting ; her masts are resplendent with many-hued streamers. At the stern proudly floats the splendid silk flag presented by the ladies of Gothenburg. The deck is adorned with flowers and ribbons ; I am touched at the sight of my national colours.

All the vessels in port are dressed with bunting and crammed with spectators. An army of photographers, who all have their cameras pointed at the “Virgo,” are preparing to immortalise the vessel as she now appears.

The launches and all the boats, large and small, are making the “Virgo” their rendez-

vous. The rest of the population is on the quays and the neighbouring buildings.

M. Vieillard, a friend, who came to accompany me, left me at 9 o'clock ; we arranged to meet at Spitzbergen.

I saluted Baron Dickson, his daughter and his niece, who were on the quay. His son came to the "Virgo" to shake hands and wish me a good voyage.

The three explorers also arrived, with their friends crowding round them. The partings were very touching and the emotion in which all present shared reached its height when precisely at 10 o'clock the signal for starting was solemnly sounded.

The "Virgo" is slowly moving.

The enthusiasm becomes indescribable. An immense hurrah, four times repeated, is volleyed from every panting breast. Handkerchiefs and hats are waved frantically, the cheers burst forth with redoubled vigour. Andrée, Ekholt and Strindberg appear at

the bulwarks with their bouquets and their ribbons; they signal their adieux and acknowledge ours.



DEPARTURE OF THE " VIRGO " FROM GOTHENBURG, JUNE 7, 1896.

Then we too have our share in this grand and most impressive manifestation.

The flag of the "Virgo" dips by way of salute and then rises again, and at this moment the cortège of vessels and boats forms

up around our vessel, which has progressed a little towards the open sea.

Something like a hundred boats follow in our wake. On several of them the bands are playing, and a regular procession commences. Those who have no boats follow along the quays ; it is a veritable human tide.

A few inevitable collisions occur between some of the impetuous small craft, but, most happily, no serious accident is to be regretted.

The sun is shining gloriously, the sky, too, has put on its festive garb and seems desirous to encourage the bold explorers leaving for the conquest of the North Pole.

We are now out in the open sea.

At one o'clock we are assembled on the quarter-deck, and the introductions commence :

Herr Andrée, former pupil of the higher Technical School of Stockholm, Director of the Patent Office, and commander of the expedition ;

Herr Ekholt, doctor of natural philosophy, chief of the Meteorological Office of Stockholm;



STAFF OF THE EXPEDITION.

Herr Strindberg, former student of Upsal University, second master at the Free University of Stockholm;

Herr Svante Arrhénius, hydrographer, chief

of the Stockholm University, professor of natural philosophy ;

Herr Grumberg, naturalist, master at the Stockholm University, higher school ;

Dr. Carl Ekelund, physician to the expedition ;

Captain Hugo Zachau, commander of the "Virgo," which ordinarily plies between Gothenburg and Hull.

Nor must we forget the stewardess, Charlotte, a complaisant Swede, wearing a coquettish little white toque of the comic-opera type, trimmed with a pretty ribbon bearing the badge of the expedition. This charming person made me three pretty curtesies, and an acquaintance was soon formed between us. It is she who will wait on us at table. She seems much at her ease on board the "Virgo" and she has her sea-legs better than I have mine. She has made for each of us a napkin ring with ribbons ; mine bears the French colours. She is moreover very amus-

ing. There is also the cook, who excels in the preparation of "*omelettes aux anchois*"—but I will not anticipate.

After the introductions we taste the brandy and whisky ; we drink toasts for the success of the polar expedition ; then several speeches are made. At 3 o'clock we assemble for dinner in the dining saloon. The Captain does the honours at the table. He is a jolly amphitryon, well rounded off and broad both physically and morally ; the meal passed off very gaily.

I was seated near Strindberg and Professor Arrhénius, with whom I can speak in my own language and also learn a few words of Swedish. This, in fact, is simply by way of retaliation, as I have been appointed "professor of the French language" by acclamation.

We take our coffee on deck, smoking delicious Havanas presented to the expedition. Gently cradled by the waves I abandon myself to my reveries. How many things have

I seen since my departure, and how far am I already away from home! Nevertheless, I have only reached the first stage, and much excitement is still in store for me.

I have taken possession of my cabin, which adjoins the kitchen and dining saloon, and I am settling down there as comfortably as possible, but not without difficulty, as the place allotted to me is very small.

At 8 o'clock the dinner bell once more unites us round the table, and the evening is spent in frankest cordiality. The voyage commences very promisingly.

## II.

### OUT AT SEA.

*June 8th, 1896, 10:30* :—We have been under way for 24 hours. We are in sight of Norway, off the Forsund, at a distance of 15 kilometres from the coast, but the mist prevents us from seeing very far. The fir-clad mountains are vaguely outlined to our right, and the “Virgo” is heading due north-west. There is nothing to do for us but to take life as it comes. It is in my cabin that I commence my diary. The sea, although a little rough, has not yet troubled me; Andrée alone has already paid tribute.

*Tuesday, June 9th, Coasts of Norway* :—Sea rough, general discomfort and prostration. I am unable to write. The “Virgo”

rolls heavily. Now, at 6 p. m., it is as light as in mid-day.

*Wednesday, June 10th, 6:30* :—The temperature has gone down considerably ; we have crossed the polar circle. A steamer has kept company with us this morning at a distance of 12 kilometres on our port side. Sea rough.

*Thursday, June 11th, 10 a. m.* :—In sight of the Lofoden Islands ; sky overcast ; some few rays of the sun ; sea smoother ; the vessel still rolls.

*Friday, June 12th, 9:30* :—At last we are in the straits which lead to Tromsö. I was so ill to-night that I should have thrown myself into the sea had I forgotten, for one moment, my duty and my family.

At 11 p. m. I sent for the doctor ; it seemed to me that I was going to die all alone in my narrow cabin. He ordered me champagne

and sleep. Charlotte, the stewardess, brought me some oranges and took off my boots, which I had not had the courage to take off for four days. O Charlotte, my fair Scandinavian with your clear eyes, your engaging smile, your gay face and your lithe, robust physique, how you must have pitied "the French gentleman," as they called me, who but the other day was so nimble, so sure of himself to all appearance, and who has suddenly become more inert and helpless than an old cap that has been cast away by the skipper! Such is human nature!

And in spite of the horrible tortures I suffered, I was vaguely conscious of the strange humour of the situation of having my boots removed by dainty female hands better adapted to millinery than to such a rough task.

Have you ever been sea-sick? If you have you will understand me; if not may God protect you from ever knowing it! How well I then understood what is narrated of Cicero,

who, having taken refuge on board a vessel in order to escape the assassin sent out for him by Marc-Antony, preferred returning to Gaëte to face the death which he feared rather than bear any longer the tortures of sea-sickness.

The bay bristles with high granite mountains with snow-capped summits. The "Virgo" makes signals to call a pilot, who is a long time coming ; she stops from 5 o'clock to 9 awaiting him, and strange to say, when the noise of the engine ceases we have a feeling of sadness. It is as if something was wanting in our lives.

At last, at half-past nine, the much-wished-for pilot arrives, and the "Virgo" resumes her route towards Tromsö, the promised land.

We are now floating on a lake with banks clad with verdure. I behold with some amount of pleasure the objects surrounding me.

What a contrast ! On the right a group of

pilots' houses, very well built in bricks, on the mountain slope in sight of the sea. Heavy cumuli cover the summits of the rocks ; above, the sky is of a pure blue, and the bright sun pours floods of golden light over the landscape.

On the left there is a church, standing all alone, the rendezvous of the fishermen who inhabit the coast in summer.

The sailors are getting ready the boat which is to set us ashore, as there is no quay at Tromsö and the "Virgo" will remain at anchor in the roads.

The bay is getting narrower, and villages succeed each other, with telegraph lines on both banks. Numerous Norwegian fishing boats are ploughing the sea. The air is pure and dry.

The "Virgo" glides majestically over the waves like a large bird. The landscape becomes animated and really fairy-like.

At 11 o'clock we sight Tromsö with its

steeple, its wooden houses and villas rising in tiers one above the other on the slope of a very fertile mountain. The pilot is still steering the "Virgo." Objects appear larger and more distinct; there is the harbour with its vessels at anchor.

At ten minutes past one we arrive opposite Tromsö. The anchor is dropped at about 1 kilometre from the shore. As I have already mentioned there is no landing stage. We are already surrounded by several boats. There is M. Aagaard, the consul, who comes to welcome us. Then the telegraph messenger appears, to hand Andrée a package of telegrams. Lastly there are the friends of the explorers, and the members of the Geological Commission who are going to travel with us as far as the Ice-Fjord.

We take a seat in a boat which puts us ashore a few minutes later on.

*June 14th*.—We left Tromsö at 1 A. M. in splendid weather. "The farewells of the

inhabitants who came flocking in crowds to cheer us, were very touching, and the "Virgo" resumed her course towards the north.

The sun was shining so brilliantly that I could scarcely realise whether it was mid-day or mid-night.

Although less solemn than at Gothenburg, our departure was very imposing ; the whole town was assembled on the quays, and all the boats of the port were formed in line to do us homage. There were tourists in steam launches, and fishing-boats. In short, the whole populace of Tromsö had made a point of being there to wish us God-speed.

In the boats there were many well-dressed ladies. One boat in particular was occupied by five females only, who were exchanging frantic adieus with the sailors by waving their handkerchiefs.

Then Tromsö receded in the background and will soon be nothing to us but a memory, a vision looked back to with regret.

Sunday passed without any incident: on Monday night we fell in with the first icebergs, and progress became more difficult.



FIRST FLOATING ICE.

*June 16th, Noon* :—Since the morning, we have been running along the coast of Spitzbergen, my future home, the place of my temporary exile. The progress of the boat is slow

and perilous, in the midst of floating ice-blocks which threaten to crush us at every moment. It requires all the experience of the Captain and all the vigilance of the man at the wheel to avoid a catastrophe.

The ice-pilot is on the lookout in the rigging and indicates by signal the open channels.

We have seen a large number of birds, whales throwing up an immense stream of water, seals, etc. Three of the latter were disporting themselves on an ice floe within gun-shot. They were at once saluted by a discharge of guns which did not hit them.

A variety of birds which is very common in these regions is the auk, which dives immediately it is pursued. This is, moreover, the way in which these birds seek their food, like all birds of the polar regions, for they live on fish. The steward of the vessel has just killed two with one shot. These birds have a very clumsy flight; their tail is very short,

and it is only with the aid of their web-feet that they steer themselves.

Yesterday, while passing near the Isle of Beeren-Eiland, which was hidden from our view by the fog, we saw myriads of birds of all kinds, among others a large number of sea-gulls.

This morning the thermometer stood at 2° above zero (centigrade).

There was hoar frost all along the rigging, and the sailors on the watch aloft could not be over warm.

We met a Norwegian sailing boat which was hunting walrus, and had been cruising for several days in sight of Spitzbergen. They gave us some useful hints as to the state of the ice. Every now and then a sailor took soundings. The depth was from 15 to 20 fathoms.

The "Virgo" has just stopped her engine. The officers are holding a council. We are at the 76th degree of latitude, and we have

not much further to go in order to reach Ice-Fjord, where we shall put in first before proceeding to Norsk-Oarna.

To the right the mountains covered with eternal snow; in front of us an impassable ice-field. There is an open passage near the coast, but the Captain does not know the depth of water there. He is examining his charts, and we shall have to wait. However, I fear a delay, which will not suit André.

### III.

#### THE INSTALLATION.

*Wednesday, June 17th, in lat. 77° N. :—*After having vainly sought a passage during the whole of yesterday, the Captain deemed it wise to take refuge in the Horn-Sund Bay, a small natural port at the south-east of Spitzbergen, where he cast anchor this morning at 4 o'clock.

Here we are secure from all danger, and shall patiently wait till the sea is open, which will not be long.

Our little harbour is a marvel of creation ; a ring of mountains covered with snow, the summits of which were this morning veiled in mist. Immense glaciers, from which portions detach themselves with a fearful crash, animate this white landscape, while at the same time

inspiring us with a feeling of vague dread. Gigantic icebergs, resembling in their shape and bluish colour immense crystals of copperas, are drifting about in the middle of the bay, a veritable oasis where the temperature is very mild, notwithstanding the snow which covers the ground almost entirely.

The sun is very hot, casting a golden reflection over the whole of this charming picture, which the birds enhance by their glad song as if to testify to their joy and love of life.

At 9 A. M. we set foot on terra-firma with undisguised satisfaction. Andrée, Ekholm and Strindberg go ashore equipped with their instruments. They fix our bearings and determine the magnetic declination.

In fact they have been working incessantly since we went to sea. They are true men of science, in love with their work, learned, yet making no show of their knowledge.

The geologists have found a vast field for

their researches, and the botanists have been able to collect at their ease. However, while the fauna is varied enough, the flora is very scanty, being confined to a few lichens, with mosses of a pretty green colour, cochlearias and dwarf saxifrages, the tiny violet flowers of which are charming to behold.

Some climbed the mountains and descended the slopes on ski, the beloved ice shoe of the Scandinavian ; others went hunting with the arms presented by Swedish armourers to the polar expedition. As for myself I was content to admire this imposing nature and tried to utilise my modest talents as an amateur photographer in order to perpetuate in negatives the splendid picture in which the "Virgo" was set, now appearing reduced to Liliputian proportions.

Our general quarters were established on the ruins of an encampment which had belonged to a party of Siberian hunters who spent the whole of last year on this spot.

There are many fragments of driftwood cast ashore by the waves and numerous bones ; a sailor picked up an enormous vertebra of a whale and the doctor extracted a molar from the jaw of a bear (the bear was no longer there to protest).

The pilot went to explore the sea from the top of the mountains. No change this morning in the state of the ice.

We reassembled at the "Virgo" for lunch at 2 o'clock. Andrée went in the ship's boat to shoot seals but without hitting any. After lunch we returned to the shore, and each of us occupied himself according to his taste. The sky cleared up and an east wind arose, very cold and cutting. The boat danced very much as we returned, and the current drove before it all the pieces of ice floating in the bay. At 11:30 P. M., at the moment when I am writing these lines, a sun-ray is falling through my porthole, and the wind is whistling with some violence.

*Saturday, June 20th, 4 a. m.* :—Pleasant awakening at the mouth of the Bay of Ice-Fjord opposite the “Raftsund,” which has been at anchor since last night.

Weather dull, a fine cold rain. A boat comes towards us, bringing a correspondent of the paper “Aftonbladet,” of Stockholm, who is to accompany us to Norsk-Oarna.

A small boat brings my friend Vieillard, who is the bearer of despatches for me. We spend two hours together, and my joy is great at seeing him again, and at last hearing news from my family. Then, the moment of parting has come. M. Vieillard rejoins his vessel in order to return to France; he takes with him my letters and despatches; I take several negatives of the “Raftsund,” a splendid boat, and the “Virgo” then continues her course towards the north after having exchanged the customary salutes.

The sea is free from ice, and the “Virgo” is now going ahead full speed.

*Sunday, June 21st:*—Towards 2 A. M. we arrive in sight of the Norsk-Oarna islands, the place intended for the erection of the shed, and the future centre of our operations.



DANE'S ISLAND AND PIKE HOUSE.

During the morning we take a reconnoitring trip by boat round the islands in order to find a favourable place, accessible to our

vessel, the unloading of which will be very difficult in the absence of a landing quay and all the plant usually available in any port.

The charts which we possess of this region are very inaccurate. Andrée takes a survey of several points of the coast. The sportsmen in the boat bagged about 10 eider-ducks. We gave up the idea of establishing ourselves here, and in the afternoon we reached the Isle of Amsterdam, 12 kilometres to the south-west.

The sky is clear, the air is keen and cutting.

*Monday Morning* :—The three explorers make a fresh survey, and Andrée finally decides on the little vale of Dansk-Gatt as the point where we are to establish ourselves.

The place is sheltered on all sides by high mountains, opening out to the north only upon the open sea. A wooden hut, formerly constructed by an Englishman, Mr. Pike, will

serve us as a shelter, and we shall leave there the surplus of our reserve store of provisions. This hospitable little house already possesses a depot of preserved provisions, coal and various articles. The ground is strewn with pieces of rock and covered with snow, into which one sinks to one's knees.

*Tuesday, June 23rd.*—At 6 A. M. the vessel began to unload; all the boats are out at sea. The "Virgo" cannot approach nearer than within 150 metres of the bank. The disembarkation of the balloon and the gas plant will present very serious difficulties, and will certainly take up much precious time.

Thermometer 2° (centigrade) above freezing point; Barometer 760 millimetres. Wind south-west, fresh. Sky cloudy; clear patches at rare intervals. Sun very hot. Sea calm. The steam launch has got steam up. Mr. Pike's yacht came to visit the house on the 16th inst. This little structure, entirely built in

wood like the Norwegian houses, is comfortable enough ; it contains a dining-room, bedrooms, and a kitchen. There are stoves in all rooms, and our sailors have lighted them in order to dry the walls ; the lock shuts badly, and the door is kept to with a block of ice. The garret serves excellently as a dovecot, and we install our pigeons there ; but they will not be so comfortable there as in their ordinary pigeon-house, nevertheless it will be a convenient shelter for them. These pigeons have been trained at Hammerfest. We have already despatched several while at sea, but do not know yet whether they have returned to Norway.

*Wednesday, June 24th* :—The unloading of the vessel proceeds rapidly. The site for the shed is ready, and the carpenters are starting work.

This shed, intended to shelter the balloon, deserves special mention. Designed in a very

ingenious manner, it was erected at Gothenburg, where the inhabitants of the town could inspect it before it was dismantled for shipment. It is of octagonal shape, and consists of four stories, each measuring 5 metres in height; the various stories are joined to each other by means of bolts; the last story is surmounted by a balcony all round.

In order to facilitate reërection in Spitzbergen, the component parts of each story are marked with marks of different colours. The floor of the shed is composed of timber work, all meeting in the centre and made fast on the rocks with pieces of wood, for the ground is very irregular and it is impossible to level it.

On the east and west sides, two staircases lead to the balcony, and at the same time serve to strengthen the structure.

The reërection of this shed at Dane's Island was very laborious; it was carried out with much skill by the two master carpenters, assisted by the crew.



**SHED INTENDED AS A SHELTER FOR THE BALLOON.**  
(During preparations at Gothenburg.)



It was necessary, first of all, to remove the snow which covered the ground, to lay foundations, and join together the beams, which were put up and shifted by means of a hand-winch placed in the centre of the structure and slewing all round.

The work was frequently interfered with by storms, which compelled the carpenters to interrupt their task.

The framework when once put up was closed in with large panels of wood prepared in Sweden.

The upper part of the shed is carried up on the south side, above the rest of the structure, by means of beams 5 metres high, carrying a canvas cover intended to protect the top of the balloon against a violent wind.

A movable roof or awning of canvas, sliding on wire cables, was intended to protect the balloon against snow ; unfortunately time did not permit of putting it up in position.

*June 26th* :—In the morning the sun appeared ; the sky is very clear, and the snow is slowly melting. The temperature is pleasant



ARRIVAL OF A GAS GENERATOR.

to-day, but now, in the afternoon, the cirri are approaching, and I believe that the fine weather will not last long.

The "Virgo," having been relieved of part of its cargo, has been able to get within 60 metres from the shore. The crew then proceeded to discharge the heavy packages, hydrogen generators, and the case containing the balloon. The three ship's boats, coupled together, were made up into a kind of raft, hauled by the steam launch.

In order to bring ashore these packages, which weighed from 2 to 3 tons, it was found necessary to form a roadway, (or a kind of inclined plane), with the aid of two large pine logs brought from Norway, and to haul them by means of a pulley tackle drawn by the whole of the crew.

One is struck with the calm and intense stillness which reigns in these regions remote from all civilisation ; the mountain birds alone break its monotony and give us a joyous concert.

In roaming over the islands one is surprised at the number of tumuli and human

remains to be met with. This is because Spitzbergen, too, has its history, and that a rather troubled one—but we will not speak of it here.

## IV.

### THE "VICTORIA"—BEAR HUNTING.

ON the 27th of June, in the afternoon, our attention is attracted by the arrival of a vessel coming from the North. It is always a pleasant event to come across other navigators in these distant regions; it makes one feel less lonely and isolated. It is Mr. Pike's "Victoria," commanded by Captain Wilson, who hunts bears and seals on these shores. She casts anchor near the "Virgo." We enter a boat and go to welcome the travellers.

Andrée obtains from the captain some information as to the state of the ice in the North. I pay a visit to the boat, which, though otherwise plain and rough, is nevertheless fitted up to perfection for the peculiar nature of her expeditions. She contains vari-

## 88 The “Victoria”—Bear Hunting.

ous objects which are not without interest for me, who am a newcomer to these extraordinary regions, such as skins of bears and various birds, also a live young bear captured at the Norwegian islands, who utters ominous growls and seems to protest energetically against this outrage upon his liberty.

Sunday, the 28th of June, was an eventful day, and full of emotions. The “Victoria” left at 9 A. M. for Ice-Fjord, taking with her an enormous parcel of letters with our best wishes for our nearest and dearest.

After an early lunch we started for an excursion. Strindberg, Grumberg, Arrhénius, Dr. Ekelund, two engineers, two sailors and myself went off in the steam launch.

The weather was superb, the sea calm, the sky a little misty; some pretty cumuli touched the mountains. We turned round Dane’s Island and shaped our course towards Smeerenburg.

Our little boat goes ahead full speed and

gives herself up to a mad race among floating ice-blocks which cover the surface of the bay.

The spectacle is marvellous! We are surrounded by imposing rocks, whence the snow descends in capricious veins and furrows, and whose craggy summits, gilded by a glowing sun, are set off against an azure sky of exceeding purity. These granite rocks, of grotesque and erratic shape, throw upon the white surface of the glaciers the most fantastic shadows.

The atmosphere is so transparent that it is very difficult to estimate distances merely by the eye. The mountains are from 2000 to 3000 feet high, yet at first sight one would think that they are very easy to climb; I have very often been misled by this optical illusion. Sounds can be heard very clearly at a very great distance.

We cross the course of the little sailing boat of Stadling, the correspondent of the Stockholm "Aftonbladet" and the colombo-phile of the polar expedition.

90 The "Victoria"—Bear Hunting.

He is starting on a journey of discovery together with two companions. We take our course towards the east and land on a little islet covered with moss.



SMEERENBURG GLACIERS.

Our guns bring down several eider-ducks, and on setting foot ashore we come across several nests of these birds, containing three

## The “Victoria”—Bear Hunting. 91

or four eggs of the size of goose eggs and of a greyish-green colour.

But our survey is soon made, and we resume our course in a south-easterly direction, where we can already see the outline of the Isle of Moffen, which is the goal of our excursion.

This isle presents a singular contrast with the surrounding mountains, owing to the vigour of its colouring, which varies from a light-green to a dark-brown.

The mosses of different varieties, interspersed with yellowish lichens and saxifrages of a delicate violet tint, offered us a soft carpet, inviting to rest and delighting the eye.

Thousands of birds making a deafening noise inhabit this enchanted land.

But their tranquillity is disturbed by our prosaic and insatiable hunters, who give themselves up to a veritable hecatomb of game. They have scarcely yet got ashore, and about a hundred eider-ducks are already lying on the

## 92 The “Victoria”—Bear Hunting.

ground. They are so numerous and so unsuspecting that they will scarcely move away more than a few yards from us; one can easily see that their solitude is rarely disturbed by visitors of our species, or at least of an equally bellicose character.

They much resemble our domestic ducks, and one might easily imagine one's self in the midst of a park or a poultry-yard. At one moment I had about ten around me, which came to drink or to bathe in a little clear brook flowing in a cascade over the moss and the pebbles with a harmonious murmur.

At every step one comes across a nest made of moss and feathers, sheltered by a fragment of rock. The female bird has plucked off her softest down to protect her eggs or her brood against the frost. The brooding bird is scarcely disturbed by our approach. She covers up her eggs and hides them under the down before taking her flight, if she is given time to do so. The reports of the guns, re-

## The “Victoria”—Bear Hunting. 93

peated again and again by the echo reverberating from the mountains, resemble the rolling of thunder and make a hideous din.

At four o'clock, a lunch, highly appreciated, is served out on a bank of moss. This meal, eaten with vigorous appetite, consists of ham, caviar and slices of smoked reindeer-flesh; the whole being washed down with light beer, and seasoned by the most unrestrained gaiety. A pure Havana cigar completes this most unconventional feast.

We fill our lungs with the pure air, and are happy to live.

But time glides swiftly by and we must think of returning. We are two hours' journey from the “Virgo.”

Our sailors make an extensive raid upon the nests, and return loaded with baskets full of eggs and down. The game is put on board and we depart.

As we run along, the coast and the glaciers are covered with seals; but the noise of our

## 94 The “Victoria”—Bear Hunting.

engine frightens them and they flee at our approach.

The sea has become rough, and the wind, which takes us aport, sends up waves which wash the decks. We are much tossed about, but I now stand the rolling of the vessel like an old mariner. Nevertheless, we must not boast : one cannot be too sure of anything. The temperature has gone down perceptibly and the cumuli, which a short time ago were hovering on the sides of the mountains, are now lowering down upon the sea and soon envelop us completely. We are now in the midst of a very dense and a very cold fog. We can scarcely see a few yards in front of us, and we must slacken speed in order to avoid collision with the icebergs detached from the glaciers. The sun, which a moment ago still showed very feebly, has completely disappeared. We are plunged into utter darkness, and in spite of compass and charts we have for the moment lost our bearings. What

## The “Victoria”—Bear Hunting. 95

a change after the aspect of the sky a short while ago! The engineer whistles by way of a call to the “Virgo,” but the “Virgo” remains silent.

Without being actually desperate our situation becomes critical, as we no longer know exactly what distance we have covered.

We run a risk of passing our island without perceiving it, and of getting lost at sea.

At last, after several detours, we recognise the lagoons of the Isle of Amsterdam on the right, and soon a sailor points out the “Virgo,” which looms in the semi-darkness at a distance of 50 yards or so in front of us.

At this moment it is 8 p. m. The Captain, Andrée and Ekholm are on the deck. Without being alarmed at our fate they are glad enough to see us back again, but Stadling’s boat has not yet come back.

The mist becomes thicker and thicker, and one can scarcely see from one end of the vessel to the other. One of the crew is ringing

## 96 The "Victoria"—Bear Hunting.

the bell every few moments in order to indicate the route to the three belated tourists. The supper passes off very gaily; each recounts his adventures and describes his impressions; mine have been of a very lively nature. But the day still had in store for us a far more remarkable event.

We were beginning to be rather troubled about the fate of our friends, when about 10 p. m., having gone up on the gangway to see how the fog was, I heard, very faintly at first, a murmuring sound, then a song keeping time with the splash of oars. No doubt it is they; evidently they, too, have lost their way.

The outline of the gallant little craft appears a few yards away, and the boat comes on propelled by oars, as they had been compelled to take down the sail. But what is that shapeless mass, of a doubtful white, spotted with red, which fills the bottom of the boat?

Although worn out with fatigue the excur-

## The “Victoria”—Bear Hunting. 97

sionists are radiant; they have performed veritable prodigies; they have gone bear-hunting and bring back three dead bears in their frail boat.

They are at once the object of an enthusiastic ovation, while the animals are hoisted on board—a she bear of large size and two cubs, who have left a pool of blood in the bottom of the little boat.

\*       \*       \*       \*

You already know Stadling, permit me to introduce his two companions, Appelberg, engineering student of the Stockholm Polytechnical School, and Axel Stack, chemical engineer at the Stockholm University, and to let the first-named gentleman speak in order that he may recount to us the circumstances of this somewhat dramatic adventure :

“ You will remember the charming day we had on the 28th of June; the sun glistened on the waters of Smeerenburg as on a mirror; the surrounding mountains enhancing the

## 98 The “Victoria”—Bear Hunting.

wildness and grandeur of the scene. You will also remember the glacier at the bottom of Smeerenburg. I have told you about the adventure we had opposite this glacier, when in consequence of a sudden split, a detached mass of enormous size produced in the sea an immense wave, which threatened to engulf our small boat and gave us an unexpected douche.

“Immediately after this adventure I hastened to take a photograph of the glacier. While searching for a suitable point I discovered in the snow on the shore the track of three bears, going from the east to the west in the direction of South-Gatt and the open sea. Having informed my companions as to this lucky find, I returned to the boat followed by my friends, one of whom was gravely engaged in drying his clothes in the sun, after the enforced bath caused by the splitting of the glacier.

“Thereupon a rather original chase com-

## The “Victoria”—Bear Hunting. 99

menced ; my companions rowed, I held the rudder lines, while observing through my glasses the tracks on the bank and following their direction. The tracks of the bears led us continually from east to west. Here and there the animals evidently had rested in some natural trenches formed in the snow. In other places, there were sloping grooves on the bank where the bears had amused themselves by sliding. Having passed two promontories and a very ancient glacier, we arrived at a third promontory, beyond which there was another glacier about two kilometres wide. In front of it there was an iceberg.

“When we arrived at the extreme point of the promontory we stopped, not seeing any tracks beyond ; we concluded, hence, that the bears must be somewhere in the neighbourhood.

“Having reconnoitred as far as the firm ice, protected by large icebergs, I perceived the bears below the glacier, jumping one after

## 100 The “Victoria”—Bear Hunting.

another from a block of ice. The mother, followed by her cubs, was giving herself up to this exercise, either to amuse herself or to give her young ones a lesson in gymnastics—I do not know which.

“At any rate, I watched with curiosity for some moments this scene of ursine family life. It was an exceedingly curious sight, I assure you. But this patriarchal and rustic scene was destined soon to come to an end, thanks to the huntsman’s instinct which suddenly awoke within me. I felt bound, at all cost, to kill this interesting family—the mother and her cubs. Why? Who can reason with passion? who can reason with a hunter? Without further idle reflection, and as the chief of a gang who has resolved upon an immediate attack on long-desired prey, I ordered my comrades to remain in the boat until I returned, and on my knees I crept over the ice behind the fragments of rocks towards the three animals. This ice was perforated like a

## The "Victoria"—Bear Hunting. 101

sieve, and the water fell from it in small cascades with a continuous and monotonous noise. Small fragments were detaching themselves from it every moment, without retarding my progress.

" Regardless of all risk I continued to drag myself along behind fragments of rocks, and approached to within about 400 metres from my quarry. Now I had no longer any shelter ; I was exposed to view. Then I took a long aim, fired, and wounded one of the cubs. The mother rushed towards it, sometimes looking about her, and sometimes licking the poor beast.

" I could see her very closely with my glasses. I fired a second time, and the mother then turned furiously towards me. My cartridges had got damp and missed fire. I became nervous. I was compelled to go and fetch fresh ammunition from the boat. The she-bear gave up her first idea of attacking me, and returned to her cubs,

102 The "Victoria"—Bear Hunting.

"Then, having taken fresh ammunition, we commenced, all three of us, to drive the animals towards the open water, and at last, to our delight, saw the mother, followed by her cubs, start swimming. Stack remained on the ice, armed with an oar in order to cut off



ARRIVAL OF THE CAR.

their retreat; Appelberg and myself gave chase from the boat. The she-bear, with one of the cubs on her back, swam at a fairly good rate towards us. We had scarcely had time to row three or four minutes when the mother had climbed upon a large block of ice floating

in the midst of the open water. Having approached to within 50 or 60 metres, I fired again, and my bullet striking the bear between the two shoulders, passed through her lungs. The animal uttered a terrible cry, which was echoed from the mountains. In a great fury she threw herself into the sea, swimming towards us with rage, but only for a few moments. The poor beast soon died, still carrying on her back the cub which I had first wounded. It was killed at once, and the other immediately afterwards.

“We thereupon dragged the animals towards the ice-bank, where I photographed my victims, stretched out lifeless, which had been so lively and alert but a short time ago, and it was not without much difficulty that we succeeded in putting them aboard our frail boat. At last we started on our return to the ‘Virgo,’ still full of excitement, when suddenly we were caught in the fog in the midst of the Smeerenburg waters.”

104 The “Victoria”—Bear Hunting.

The next day, the ice-pilot, an old sea-dog, assisted by Stadling, proceeded to cut up the three animals, the skins of which were salted and enclosed in barrels; after this the most delicate morsels, seasoned with various sauces by the cook, who displayed all her talents, adorned the table at several meals. Without being absolutely exquisite, the dish is appetising, and besides the chance of dining on polar bear does not occur very often.

V.

THE MIDNIGHT SUN.

*Friday, July 3rd* :—I have not put foot ashore to-day ; for three days past we have had terrible weather, and I wonder whether the shed will be able to resist the fury of such a wind. However, this is an east-south-east wind, which would suit perfectly well for the voyage, but the start would be very difficult under these circumstances. This delays the work of the carpenters and the shed does not rise up very quickly. I felt very dull to-day and was happy enough to read again all the old journals which had served for packing purposes, as I am not very well supplied with works of a purely literary character, a few volumes only composing my whole library. I have also read again the expedition of the “Jeannette,”

lent to me by Andrée, and the dramatic episodes of which are not calculated to raise my spirits. What an extraordinary climate !

In this region fine days are very rare. However, it is clear all night, but for a long time past the sun is scarcely seen. The thermometer remains near the freezing-point.

But the midnight sun ! What a never-to-be-forgotten spectacle is presented by this polar sea in these radiant nights !

As soon as the fog lifts its veil, leaving the eye at full liberty to roam over the horizon, one sees an endless succession of palaces of ice, strong castles, cathedrals, and fantastical structures ; some in majestic indifference to the wave which caresses their mighty bases, the others slowly rocking to and fro, notwithstanding their ponderous masses, and, at each oscillation of their sparkling faces, emitting from their alabaster sides rocket-like flashes of emeralds, rubies and sapphires.

From the vast sides of these icebergs there

are streaming down numerous cascades, pouring into basins formed in the very bases of these enormous ice-mountains, subsequently losing themselves in the waters of the sea ; and all these waterfalls, large and small, are lit up by the hot and red rays of a brilliant sun.

This polar nature, which one imagines to be so poor, so icy, so inert, in regions which we know from dull and cold narratives of voyages only, this wonderful nature lavishly spreads out before my eyes the sight of an endless mass of sparkling and flashing diamonds, a veritable pyrotechnic display of another world, which the rays of the sun cause to burst forth and change twenty times in a minute.

And all this, like a sublime jewel casket, rests on velvet of an unheard-of variety, delicate green, pale pink, orange red, crimson, bright red, purple, golden yellow, violet, sky-blue—a marvellous velvet of deep, soft and

delicately shaded tints, which the calm and irradiated water seems to spread out for the greater delight of the eye and the soul.



THE MIDNIGHT SUN.

O man, what art thou before this sublime spectacle?

In the presence of all this grand and mighty nature, what becomes of thy most ingenious

artifices, invented to charm by the excess of accumulated marvels?

How paltry are the most superb decorations of thy theatres, compared with what one sees here—here where the water and the sun alone undertake the *mise en scène*! What are all the marvels hatched by thy brain, by thy sovereign industry, in the presence of miracles of colouring and brilliancy engendered by a ray of light penetrating through a fragment of ice?

*Tuesday, July 7th* :—We had very bad weather on Saturday; on Sunday the atmosphere calmed down a little, and yesterday (Monday) we had a splendid day; we took advantage of this in order to make an interesting excursion to Magdeleina Bay by the steam launch. The peninsula contains an immense necropolis, dating back several centuries; it is here that the whalers of Smeerenburg come to bury their dead.

We killed a very large seal, which nearly caused the boat to capsize when we put him on board. Strindberg killed a black fox at the foot of a glacier.



EXCURSION TO MAGDELEINA BAY.

We returned at midnight in the rays of a brilliant sun; in fact, at present we constantly see the sun when the sky is clear. He is describing a circle, of which the "Virgo" appears to be the centre, and the sunshine is sometimes very hot. This morning the tem-

perature was 20 degrees in the sun, and 5 degrees in the shade.

The work of erecting the shed is being pushed on as quickly as possible, but it is a gigantic task. To-day they have got to the second story; there are two more to be put up, and these are the most difficult ones to erect.

In the midst of this feverish work the days pass anxiously by, for we are without news from Europe. I am already half crazy when at last, on the 12th of July, at night, after a very dull day, the watch all at once signals the arrival of a small sloop, which is sure to bring our mail. In a few moments everybody is on deck, and the captain of the small boat, the "Express," hands us an enormous bundle of letters, which Andrée distributes among us. I received 14, and it would be difficult for me to express the joy I felt at this moment.

The "Express" brings six English and

German tourists, who came, somewhat early, to be present at the departure of the balloon ; they are received on board the "Virgo" and evince a very lively interest in Andrée's project.

VI.

NATIONAL FÊTE.

*On Board the "Virgo," July 14th, At Night.*—The bad weather continues, and the squall is so violent that the little sloop "Express" has been unable to put to sea. We have a very gay lunch; Andrée made a little speech which greatly moved me. He spoke of the national fête in France and of aërostation, which I represent. He praised the self-denial which I had exhibited and finally expressed to me the pleasure he felt in seeing the bonds of friendship becoming closer day by day. He did not forget either family or friends.

The Captain ordered the French tricolor to be hoisted on the mainmast and the ship to

be dressed with bunting. Champagne sparkled in the glasses.

Strindberg played the national air, and those present overwhelmed me with kind attentions. The following letter will give an idea of the close friendship which reigned among us.

ON BOARD THE "VIRGO,"  
DANSK-GATT, July 14th, 1896.

To MADAME LACHAMBRE,  
Paris.

*Dear Madame,*

To-day being the national fête day of your native country, "*la belle France*," we were happy to have a precious occasion to present to M. Lachambre our sincere thanks for the great services which he has rendered to our expedition by the careful and excellent work which he has executed, and in following us here in order to give us the benefit of his valuable experience. Certainly, this voyage has been a great sacrifice, both for you and for

him, and it is, therefore, our duty to thank you as well as M. Lachambre.

We have this day drunk the health of M.



THE "VIRGO" DRESSED FOR THE FÊTE OF THE 14TH OF JULY.

and Mme. Lachambre, while hoisting the tri-colour and singing the Marseillaise. On this occasion, Andrée has had the honour of fixing on M. Lachambre's breast the decoration of

the Academical Palms, and we have congratulated him with enthusiasm on receiving this so well-merited distinction.

We beg you will be convinced, dear Madame, that we are doing our best to minimise for M. Lachambre the inconveniences of a life in these very inhospitable regions.

We are, dear Madame,

Yours most respectfully,  
(*Signea*)

S. A. ANDRÉE,  
NILS EKHLOM,  
NILS STRINDBERG,  
ZACHAU,

*Captain of the "Virgo";*  
GOSTE GRUNBERG,  
*Zoölogist;*  
CARL EKELUND,  
*Physician;*  
SVANTE ARRHÉNIUS,  
*Hydrographer.*

While Strindberg played on his violin the most poetical and impassioned Swedish tunes, the wind raged outside, and the vessel rocked and creaked fearfully.

*Dansk-Gatt, on Board the "Virgo," July 16th, Noon* :—The storm, after calming down for a moment, burst forth again last night with renewed violence, and the "Express," which left at 8, was obliged to return some hours afterwards to take shelter near the "Virgo" in all haste.

If the "Virgo" is a strong vessel capable of braving a storm, it is not so with the small sloop, which has barely escaped shipwreck in coming here.

## VII.

### THE INFLATION.

*July 21st* :—It was not until to-day that we were able to commence devoting our attention to the balloon, which, since its disembarkation, has remained enclosed in its case at the foot of the shed.

It is now brought to the entrance and extended on the floor covered with a thick layer of felt. It is spread out after the manner of a cast-net ; the valves are fitted to it, together with their rigging, and the net is placed in position, as well as the protecting cover.

The inflating pipes, passing through an opening made in the middle of the floor, are joined to the gas apparatus, situated 80 metres away and below the shed, behind Pike House.

This very difficult work (the envelope

alone, of the balloon, weighs nearly 1400 kilos, and the net 450) was finished in the evening of the 22nd, in a fine and penetrat-



ARRIVAL OF THE BALLOON.

ing rain. On the morning of the 23rd, snow commenced to fall in large flakes. The balloon is covered by it with a thick layer when the first few cubic metres of gas commence to

raise with difficulty the heavy envelope of silk. This operation commences even before the shed is quite finished ; part of the upper enclosures is still wanting, and Andrée abandons the idea of having the awning of canvas put up, which, however, would have been very useful, but time presses and every delay may jeopardise the departure.

The car, installed in an annex to the shed, is marvellously devised. The lower part is completely surrounded with sail cloth. It receives its light through two lateral windows. The middle is occupied by a kind of mattress covered with a sleeping sack of reindeer skins.

All around are compartments for holding books, charts and instruments, toilet articles and the kitchen utensils, arms, ammunition, etc. It is entered through a trap-door made in the ceiling. Above, at a height of one metre, a ring, mounted on jointed railings, permitting it to maintain its horizontal position, forms a balcony in the centre of which

two of the explorers will remain while the



THE BALLOON CAR.

third is resting. To this circle there are fixed the instruments, compasses, sextants, theodo-

lites, barometers, thermometers, photographic appliances, etc.

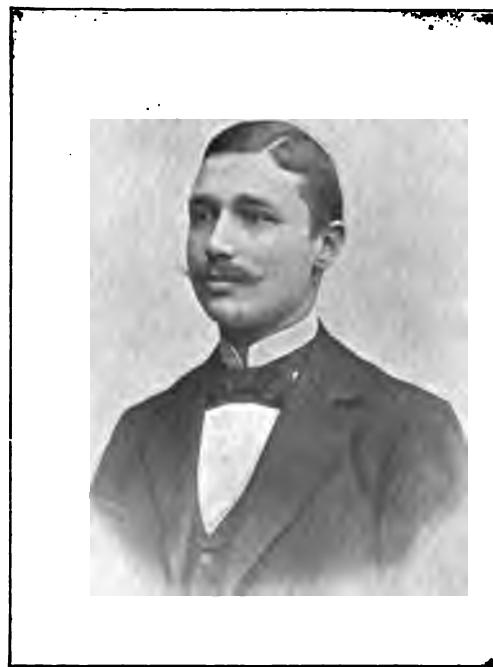
The six ropes by which the car is suspended are joined at the upper part by a cable, which brings them nearer to the centre while keeping them away from the balcony ; they then pass away from this hexagon towards the suspension ring, which is fastened to the net.

Six canvas pockets with compartments, fixed between the suspending ropes from the ceiling of the car up to the balcony, are at hand to receive any articles or instruments which the aéronauts may require to have at hand at any moment.

The load ring carries a table or board divided into compartments occupied by four baskets, intended to hold a number of accessories, buoys, grapnels, ropes, etc.

In the centre of the platform a square opening leaves room for a rope ladder attached to the appendage of the balloon, and facilitates the inspection of the interior through win-

dows let into the safety-valve. This platform may, if necessary, serve as a refuge for the



HLRR STRINDBERG.

aëronauts, should they be compelled to abandon the car.

The load ring supports a differential pulley serving to move the guide-ropes, the action of which, combined with that of the sail, is to afford the possibility of a certain deviation from the direction of the wind.

The sails are fixed to the net by hemp straps.

The three guide-ropes are attached to this pulley by a very ingenious piece of mechanism. With the aid of a crank and a bevel gear the guide-ropes, which are composed of several sections joined to each other by screw connections, can be turned. Should the end of a guide-rope get caught between the ice to such an extent as to arrest the flight of the balloon, the aéronauts can release themselves by exerting an effect of torsion on this guide-rope by means of the crank and abandoning the length of rope caught ; a fresh length of guide-rope will then be added at the top if necessary, making use of spare lengths of rope.

In order to prevent the guide-ropes becoming detached at an inopportune moment, Andrée has devised the plan of providing a spring, consisting of a flat piece of steel, which exerts a pressure upon the connecting screw nut ; the pressure of these springs is graduated, increasing upwards, so that it will always be the lowest length of rope which will detach itself first. These guide-ropes are impregnated with vaseline, which renders them insubmersible and greatly facilitates their gliding over the ice.

Above the ring, victuals and provisions of all kinds are stored in canvas bags divided into compartments and strongly fastened between the suspending ropes ; all the articles are fixed so that no shock can throw them out.

The number of suspending ropes is 48, forming 48 equal intervals, of which 36 are occupied by bags of provisions, and 12 by sledges, boats, spars, etc.

The provisions comprise tins of preserved food of all kinds: chocolate, compressed bread, condensed milk, champagne, claret, alcohol, fresh water, not forgetting butter, an indispensable article of diet in the polar regions.

All these bags are weighed, classified and labelled, and make up a weight of 1000 kilos. What is not consumed will serve as ballast, Andrée having considered it more practical to carry provisions in place of ballast.

The apparatus for cooking the food consists of a cylinder, suspended by a strap 10 metres in length, along which a rubber tube runs; inside the cylinder a spirit lamp is lighted by being brought in contact with a match ignited with the aid of a small, very simple contrivance worked by a cord.

A cooking pot of small dimensions, filled with water, and which is enclosed in the cylinder, can be made to boil in a few moments. The lamp can be extinguished from the car,

by blowing down the rubber tube, and a mirror arranged at an angle of 45 degrees enables the occupants of the car to see whether the lamp is well extinguished before hoisting the apparatus up into the car.

## VIII.

### THE "ERLINE JARL."

*Dansk-Gatt, July 23rd*.—The south-wind, which has blown almost constantly since our arrival at Dansk-Gatt, ceased on the 19th of July, and north and north-easterly winds are now blowing, with their usual accompaniment of rain or snow.

The gas-making apparatus acts very regularly, yielding about 60 cubic metres per hour.

The work is divided into spells of 6 hours at a time, the first watch, from 8 A. M. to 2 P. M., being entrusted to me. I am assisted by two seamen, one of whom speaks French fairly well, *viz.*: a Mr. Knos, engineer, who has signed for the voyage. My place is then taken by Strindberg, who in his turn is relieved by Andrée, whom I succeed again.

At 11 P. M. the sound of a siren breaks the stillness of the night, awakening the echoes of the mountains. I then see the "Erline



THE HYDROGEN GAS APPARATUS.

Jarl," a splendid boat, flying the Norwegian flag, coming on slowly and majestically, in order to cast anchor at some distance from the "Virgo."

Around the place where the sulphates and residues of the hydrogen apparatus discharge into the sea, the sea-water has assumed a rusty color throughout a compass of several kilometres. This peculiarity causes great astonishment among the new arrivals, who imagine that they can see the sea-bottom.

Captain Zachau, of the "Virgo," goes to welcome the newcomers, and returns on board his vessel with a load of letters for our crew.

The snow falls thicker and thicker and the shed does not afford the least protection. I have a kind of sentry-box rigged up for me in the packing-case for the net of the balloon.

We experience much difficulty at the commencement of the inflation, and I am frequently compelled to requisition assistance from the gas-works, the material of the balloon being so very heavy to shift about.

I may mention one incident in particular.

The balloon had already absorbed 1,000 cubic



THE SHED FINISHED.

metres of gas when the apparatus suddenly stopped and absolutely refused to act, which

caused great excitement among the members of the expedition. What did it mean? Here is the solution of the enigma.

The pump which draws its supply from the sea had taken up such a quantity of shrimps that all the cocks are choked up. We scarcely expected to see shrimps interfere in this matter.

Andrée, who had thought of everything else, had forgotten to reckon with these diminutive factors. The generators and valves are cleared out and cleaned and the suction pipe is fitted with a rose, whereupon work goes on without any further hitch.

For the production of the hydrogen 25,000 kilos of sulphuric acid and 15,000 kilos of iron shavings have been used. All that Chemistry and Physical Science has hitherto produced by way of purifying, weighing, and testing instruments is embodied in Andrée's plant.

On the morning of the 24th of July the

tourists brought over by the "Erline Jarl" begin to arrive on the island ; there are about 60 of them, from all countries. Several of them bring me news from my friends, and an acquaintance is soon struck up. We are assailed with questions on all hands. Andrée does the honours of the establishment with much grace, and propounds his theories as to the means he proposes to adopt in his endeavours to reach the pole. He explains the instruments and apparatus, while I distribute among the tourists some samples of the material employed for the balloon.

We hear news from Europe—acceptable to a degree which no one can conceive who has never been far away from his native country. Besides, in these wild regions, everything tends to augment the unconscious longing for all that one has left behind ; and those who come from a region more or less near to one's native country, at once assume something of the nature of long-expected personal friends.

The night of the 24th is spent very pleasantly. I dine on board the "Erline Jarl" and hear a concert given by veritable artists.



THE "VIRGO" AND THE BALLOON INFLATED IN THE SHED.

My thoughts wander back to scenes of the past, and I say to myself that had some one sitting next to me at a concert in Paris told me at the time that in so many months, or

at such and such a time, I should hear the same instruments and enjoy the same tunes at Spitzbergen, I should have been very much surprised at such a suggestion.

Man proposes, God disposes.

*Saturday, 25th* :—At noon, the small sloop “Express” arrives carrying mails. At 1 p.m. the “Erline Jarl” leaves on a trip towards the north. The programme consists in approaching close to the ice-field, and the amiable Captain Bade offers me a place on board his ship. But, however much inclined to accept, I cannot leave Andrée at this moment, as the balloon demands all our attention.

*Sunday, 26th* :—Andrée lectures to our crew. His spirited and expressive language, his technical explanations, given with perfect clearness, frequently elicit loud applause.

*Monday, 27th* :—The inflation is completed at the moment when the “Erline Jarl” returns from her trip.

The "Victoria" arrives at night, and the simultaneous presence of the four vessels gives Dansk-Gatt a festive air which is greatly enhanced by the lovely sunshine. Our little international colony is very lively.

After waiting a week in order to witness the start of the balloon the tourists lose patience. They desire to be at Vadso on the 9th of August to see the eclipse of the sun.

On July 30th a sumptuous dinner is given us on board the "Erline Jarl," and on the 31st the tourists come in a body to the foot of the shed.

To the right and to the left of the entrance the crews of the "Virgo" and the "Erline Jarl" are formed up in line; at the back the passengers are grouped round the explorers. Several speeches are made by the captain of the "Erline Jarl" and some of the tourists; thereupon a young lady who is travelling with her *fiancé* and a relative, attaches to André's arm a blue ribbon, and then hands him for the

journey a bottle of the best wine, a cake, and a rose-tree with 4 roses, one for each explorer.

Captain Bade of the "Erline Jarl" then addressed Andrée as follows:—

"If you reach the mysterious point for which you are bound, deposit there the fourth of the roses, as a token of peace with the old world."

"My dear friend," Andrée replied, in accents full of emotion, "you have come so far to see me set out for the conquest of the unknown, my dear friends, I thank you !

"Mademoiselle, you have adorned me with a ribbon, on the eve of my departure ; this ribbon shall be my talisman. I have been called a great man, but it will be difficult for me to earn this title if the north-winds still continue to blow for some weeks as they do now. Our greatness will fly with them, far, far away. What can we do to remedy this ? If we cannot make a start we shall at least be able to say that we have done all that is

humanly possible, and you will be able to bear witness thereto.

"You are about to return to the South, and if you meet the winds we are so urgently in need of, send them on to us here, and we shall welcome them as messengers from our good friends on board the 'Erline Jarl.'

"My friends of the 'Virgo,' a four-fold cheer for our friends who will send us a south-wind."

During this touching speech the "Erline Jarl" fires off a salvo of 21 volleys in honour of the Andrée expedition, the report of which shook the valleys to the echo.

Thereupon, the speeches being over, we leave the isle in order to spend the rest of the night on board the "Erline Jarl," which is dressed, as is also the "Virgo," with a multitude of flags, as on great gala days, and I feel never weary of contemplating the noble colours of the French flag proudly floating at the head of the splendid vessel, a delicate com-

pliment to me on the part of the captain, which moves me more than I can tell.

How full of meaning to me is this flag !



THE DOME OF THE BALLOON AT THE SUMMIT OF THE SHED.

How full of souvenirs and consolation ! And how well one can understand, when far away from his native country, all the silent eloquence of this impersonal being, this glorious

symbol! Amidst all these people, speaking languages which I do not understand, amidst all this group of men isolated at the world's end, and I myself feeling lost in the midst of them, so to speak, owing to the difficulty of making myself understood by them, it contains a living embodiment of my native land, the very representative of the soil of France, her flag hoisted on a foreign vessel in token of the esteem in which the children of our noble country are held. And this flag seems to say to me: “You are not alone; I am here too. You are no longer isolated; we are *some one*, we are taken into account here.”

We ascend on board, and soon the peaceful reports of champagne corks—another reminder of French soil—accentuate the numerous toasts which follow each other in the large saloon. Then our spirits becoming more and more elated, there are songs, cheers, the loud hum of animated conversations, wishes for good luck, plans for future meet-

ings, and we leave the hospitable vessel in order to return to the “*Virgo*” at a very advanced hour.

What a day! And how hearts are drawn to each other in circumstances like these, when at rare intervals, few and far between, the oppressive and monotonous loneliness of sojourn in these frigid solitudes is suddenly broken by boisterous meetings of persons, hitherto strangers, who are so speedily transformed into old friends!

*August 1st, 9 A. M.*—Under a misty sky, heavy with snow, the “*Erline Jarl*” hoists her anchor, sweeps round majestically, sends us her last farewells and good-wishes, and then slowly glides away over the waters, leaving behind her a foamy wake. The throbs of her engine become more and more regular. Soon we no longer hear them, and it is with a choking sensation in our bosom, which will readily be understood, that we see, outlined

and gradually disappearing on the horizon, this fine vessel, which, for a moment, had come to bring life and joy into our midst.

Yet a long time after, leaning with my arms on the handrail of the gangway, I follow with my eyes the black cloud of smoke which the "Erline Jarl" trails over the waves. I still hear a last salute from the siren, and return in deep thought to my cabin, in a sadder frame of mind than I care to admit.

Grumberg, the naturalist, is working unceasingly to enrich his collection ; he dredges, fishes, hunts and sets snares for foxes. He has succeeded in capturing two very young animals, which he has installed on the island and which live in a nice improvised cage, to which some anonymous wag has attached a card bearing one of the petitions of the Lord's Prayer in Swedish : "Give us this day our daily bread."

Grumberg watches his protégés with jealous care, and intends to offer them to a

zoölogical garden in Stockholm, but on the night of the departure the foxes, who, for a long time past, had been working to effect their escape by gnawing through the boards of the cage, made good their escape and fled into the mountains, pursued by the sailors who gave chase. They are not caught yet. I much doubt whether Grumberg will be able to catch them again next summer.

But who knows? Fate is so fitful! He ought, said some one, to have attached a "favour" to their tails, so as to recognise them again. I, on my part, remarked that these young foxes might perhaps have been acquainted with La Fontaine's fable entitled "The Little Fish and the Fisherman," and that they would be sure to return to him as soon as they had grown to a reasonable size.

The amiable Dr. Ekelund has rarely had any occasion to act in his professional character, as apart from a few jammed fingers and other minor injuries, our state of health

is excellent ; hence he employs his leisure time in pulling nails out of cases, or else he prepares for stuffing the birds of various species which he has killed when out shooting. During the inflation of the balloon he superintends the action of the gas apparatus, and takes turns in this duty with Stake and Prof. Arrhénius.

These gentlemen are also taking their share in the meteorological service, which is carried on regularly by the Staff of the expedition.

The observations are minutely recorded every hour in the ship's log. On the Isle of Amsterdam the snow is tinged with red for a considerable distance, and the savants are collecting it to examine it microscopically. It presents, in fact, certain peculiarities ; it is thought that it contains very small plants. Scoresby, the famous whaler, had already remarked this.

## IX.

### THE SNOW.

*Dansk-Gatt, August 4th* :—The “Express” left last night, carrying away our last letters, and as the season is advanced we have now no hope of receiving at Dansk-Gatt any more news from Europe.

The north-wind is still blowing and has brought a regular snowstorm ; the mountains have donned their winter mantle and nature seems to prepare for sleep. Birds are becoming rare and their joyful cries are no longer to be heard. A white hood covers the top of the balloon, which only awaits a current of wind from the south to take flight ; but this wind which was blowing during July has now completely subsided. What an irony of fate ! Who could foresee such a contretemps and

how admirably successful the expedition would have been were we in possession of the secrets of the gods.

At present the sky is overcast and dark in the north ; it is a long time since the sun has shown himself. The sea is very rough.

The flag hoisted at the top of the mountain behind the balloon-shed, to indicate the direction of the wind, was blown down last night by the squall. It was the opinion of the ice-pilot that we were in no danger of being packed in the ice until the end of the month, but the Captain, who was answerable for the safety of the men, declared that the "Virgo" should weigh anchor on the 20th at the latest, at any cost, to resume her voyage southwards, no matter what the fate of the polar expedition might be.

Andrée and his two companions were patiently waiting for the clouds to break up and for a fresh southern wind, in order to take their flight. They have the faith which gives

courage. The balloon seems anxious to be freed from her fetters to show her strength and her power. Everything is ready, weighed



THE BALLOON AND SHED PHOTOGRAPHED FROM THE "VIRGO."

and anticipated; everything is seen to and checked in the smallest details by Andrée; provisions, instruments and outfits, all are in their places.

We have only to suspend the car and to pull down the northern part of the shed. This would not take many hours, but we want a favorable wind, and for this we are waiting in vain. The delay, unavoidable though it is, endangers the success of Andrée's expedition, and is very regrettable, for the sun is very low and the polar night is approaching.

*August 5th, Noon* :—The snow keeps falling but the wind is turning to the south-west. It is almost what is required, and hope is quickly reviving. May fate soon open the route to the north to Andrée, and return me to my country and my anxious family! At 7 o'clock in the evening the state of the atmosphere remains unchanged, the snow is whirling, and the sky is gloomy.

*Dansk-Gatt, August 6th* :—A small balloon, launched at 6 o'clock, having ascended to the height of 300 metres, took an easterly direc-

tion. The gas-apparatus is working ; the balloon, which has been inflated for ten days, is full. It is covered with snow, and there is not a single spot on the balloon shed which is not white. The car is, however, protected by an awning, but the whirling snow penetrates everywhere.

It is impossible to stay on deck, for the wind is raging, and the day goes by in monotony and gloom. Every one longs for the end of this campaign which seems interminable. As long as tourists and whaling boats were moored near us and had brought with them life and movement to this solitary spot, our stay was very agreeable ; it was a lively and cheerful international colony. Now Dansk-Gatt has resumed its mournful and forsaken aspect. "And the snow was still falling," as Xavier de Montépin would say.

Then, confined within the walls of my cabin, my dominion of 2 square metres, I begin to peruse the few books I have and which,

alas ! I know already by heart—but still hoping to find therein something very interesting—if not new, at least old. And I was not disappointed, for I read over, with great interest, in “La Mer,” by my playfellow the excellent poet Jean Richepin, his verses on snow, which were very much to the point.

It is long, long since, when sitting on the benches in our little school at Belleville, we were looking together over the top of the map of Europe at this small archipelago named Spitzbergen, which appeared to my childish imagination to be an inaccessible point.

## X.

### A LONG WAIT.

*Smeerenburg, Friday, August 7th, Noon :—*  
The sky is bright, and the sun is sending us a few rays which are reviving our hopes a little. The snow is melting; but the wind, though slight, is still blowing from the west. The balloon, which holds its gas well, is dripping little by little.

I made a long excursion on the east side of Dane's Island. The island of Fogll-Sund is glittering in the mid-day sun. The birds have awokened. I saw several flocks of eiders.

At 6 o'clock four pilot balloons are launched; three were driven to the south-west at an elevation of 500 metres and one towards the sea at 60 metres.

*Saturday, August 8th, 10 o'clock* :—Sky overcast, wind slight and uncertain, with tendency to turn south-east. Thermometer 7°, C.

Afternoon, south-east wind at 1000 metres ; on land wind still or slightly to the north.

At 9 o'clock in the evening the upper wind is still south. Let us hope that it will descend and that, at last, our plans may be realised.

*Sunday, August 9th, Morning* :—South-wind, slight ; afternoon : dead calm ; hardly any need to say every one is weary. Ekholm declares that the balloon is losing about 30 kilos per day ; he thinks it able to stand a voyage of from 40 to 50 days' duration. But under the circumstances it is really very little ; yet the envelope is solid and well finished.

*Monday, August 10th* :—Balloon very full although no gas was let in since last Friday (60 metres). Temperature somewhat higher.

south wind, very slight—barometer at a standstill.

*4 o'clock, P. M. :—Wind on land, nil.*

A pilot balloon launched at 2 o'clock. Rose to 100 m. ; direction, north. Speed from 4 to 5 metres per second. Evening, 7 P. M., south-wind, pretty strong in the upper regions.

Then a complete change : the north-wind prevails.

What then ! Are we going to fail at the last moment ?

Must we pack up this balloon, ready to take her flight to a land around which so many efforts have been in vain for centuries past ?

“ My kingdom for a horse ! ” cried Richard III. in one of those struggles in which the human wretch thinks he acquires so much glory by massacring his fellow-man and by spreading death in his path. And what would not the three hardy explorers have given for a breath of favourable wind which would have

enabled them to carry on the struggle they had commenced against the unknown !

What bitter reflections came into my mind !

In a smiling country, where everything be-speaks work and prosperity, where each one trusts to the future, happy in the labours undertaken, happy in his daily tasks, suddenly there arises this very wind so much longed for here, and in a few minutes the tempest in its blind fury has sown death and ruin where life and wealth were working together.

Here Science stood in need of a little of this destructive wind—of ever so little—but none came !

And possibly, further away, ships were being wrecked and lives destroyed by it !

O for a balloon that could be steered ! Why have we not one here ?

*Friday, August 14th, (19th day of inflation), 7 A. M.:—The Lieutenant has just informed us that a south-wind is blowing; in*

fact it is pretty strong. The gas-apparatus is set to work to complete the inflation.

The snow is falling gently, but it melts quickly. At 9 o'clock Andrée launches a small balloon, which takes a northerly course at an elevation of 40 to 50 metres, but it immediately turns off to the east as it rises, *then the wind turns due west and we cease to hope.*

Our joy was of short duration. Besides, the season is now too far advanced to attempt such a voyage. It is winter.

## XI.

### THE “FRAM.”

AT half-past nine the ice-pilot signalled a three-master off the eastern cape of the Isle of Amsterdam.

Great excitement prevails on board the “Virgo.” What object has this vessel in coming to these regions visited only by whalers and tourists? She stops and hoists the Norwegian flag on her mainmast. One cry went up from all hearts: “*Nansen!* *Nansen coming back from the Pole!*”

Those who had seen the photo of the ship “Fram” recognise her perfectly well in the steamer which is lying at a distance of 4 kilometres from us.

The snow is falling fine and thick. The Captain and André, Ekholm and Strindberg

are leaving in a steam launch to receive their valiant compatriots. When a few fathoms from the "Fram" Andrée and his companions raise a vigorous cheer in honour of Nansen, but the faces of the sailors on board are saddened with a painful expression. Nansen is not with them. On the 14th of March, 1895, he left them at 84° Lat., accompanied by the young lieutenant, Johannsen, taking with him sledges, 28 dogs, and provisions for 120 days. He directed his steps towards the North Pole in the hope to return by way of Franz-Josef land, where the Jackson expedition was to winter.

After the exchange of greetings of welcome and when the emotion of the first moment had subsided, the members of the two expeditions indulged in a friendly conversation, happy and surprised at the same time to meet again in the glacial Arctic ocean, free at last.

The "Fram," which only a day before was

packed in the ice at 81°, heard of our presence from a whaler; as soon as she was in open water she made for Dansk-Gatt in the hope of getting news of Nansen.



THE "FRAM" AT TROMSÖ.

Captain Sverdrup, Lieutenant Hansen, the doctor and five other members of the crew, take their places in the launch. The remaining three men stay on board, while the small

party are coming to visit our quarters and the balloon, which is waiting in the shed.

It is easy to imagine how greatly these brave men are astonished.

Then the expedition came on board the "Virgo," where champagne was soon foaming in the glasses. It is a pleasure to look at these brave sailors, who, after three years and two months passed amidst the polar ice, are so happy to find themselves in the company of their "brothers in arms and companions in peril."

I am proud to be one of the first to greet the "Fram" on her return to these distant regions. I had the good fortune to converse at some length with Lieutenant Hansen, who speaks French fairly well. He is an amiable man of about 30 years of age, a little over medium height, dark, with bright eyes and intelligent forehead, and a pleasing manner.

He put numerous questions to me concerning the events which had taken place in

Europe for the last three years. I informed him of the death of Alexander III., of the assassination of President Carnot, etc., and I spoke to him also of new discoveries and inventions—the cinematograph, X-rays, etc., etc.

All this seemed to greatly interest him. Then in a few words he told me the extremely touching story of the "Fram's" voyage.

Andrée made a speech and proposed a toast to Nansen and his gallant companions. The captain and the lieutenant replied in a few vigorous and moving words, and I felt myself struck with admiration for these brave men who have carried the European colours to the 86th degree of latitude.

They are happy to see again their country and their homes, but they are calm and patient as becomes true heroes. The lieutenant has a *fiancée* awaiting him. Andrée hands him a letter, only just arrived, from his mother. He also hands Captain Sverdrup a letter ad-

dressed to Nansen and bearing the inscription, "The North Pole."

The "Fram's" library contains the "Five Weeks in a Balloon," by Jules Verne, and the crew had often dreamed of the possibility of a balloon expedition coming to their relief. The dream was very near reality. In life everything is unforeseen, yet everything happens. If the polar balloon had started a few days ago it would surely have noticed the "Fram" on its way.

It is painful to think that we will have to take the aërostatic material back to Sweden and wait.

Disappointment for Andrée's polar expedition—joy and triumph for the Nansen expedition if their commander returns soon.

Andrée places in the captain's button-hole a sweet-scented rose, "La France," a rare flower in Spitzbergen, and offers him a box of excellent cigars, a present which is greatly appreciated by our genial guests. Then the

launch takes them back to their vessel amidst the hurrahs of the crew of the "Virgo."

At 5 p. m., in a fine chilling snow, we pay our visit to the "Fram" and take photographs of her.

When we are near the ship about 20 Siberian dogs, ranged in her bow, receive us with loud barks, but soon they recognise that we are friends and their bark is rather one of joy than any indication of hostility. They are all pleased at our caresses. Captain Sverdrup does the honours of his ship, which, if she has not the refined elegance of the "Erlene Jarl," yet inspires confidence by her sturdy appearance. She is the traditional Norwegian ship, with wooden hull well strengthened, her masts and her bulwarks roughly cut; in the bow the upturned boats placed on frames, form a kind of shelter under which are suspended a couple of dozen bears' hams, partly cured and dried; birds, freshly killed for eating; casks and articles of every

description, winch, anchors, cables, etc. In the stern is the tiller, placed in a square hole made in the hull of the ship ; on one side a spare tiller, consisting of a massive piece of wood ; compass, instruments, and the necessary rigging.

I stop at the observation post, where the lieutenant tells us about his work and shows us the charts of the voyage ; then we descend to the cabins, passing near the kitchen, which is exhaling a very agreeable odour.

Traversing about ten steps of a very dark staircase, I find myself in the saloon, which has a hexagonal shape not devoid of originality. A lamp with a reflector fixed on the central pillar emits a vague light to which my eyes accustom themselves with difficulty.

The wainscotting is of a primitive style of decoration, painted white, picked out in bright colours, in which red and green predominate. There is a very comfortable sofa in the background, placed opposite a table, at which the

crew take their meals. The walls are adorned with several pictures, one of which is an illustration of a Norwegian legend: three princes, who have metamorphosed themselves into white bears in order to win the hearts of three coy princesses whose hair seems to be flying heavenwards. The bears, good princes as they are, are licking their feet. Another picture is the portrait in crayons of Madame Nansen and her child. The saloon is heated by a stove, which keeps up a constant temperature of 15 to 16 degrees, C. Air and light are admitted by a glass skylight running across the stern deck.

On the left there is an automatic harmonium with a keyboard, to amuse the crew on dull days. One of our hosts, the engineer, turned out several tunes for us. It is wonderfully original, and if it were not for the respect due to Nansen, we would have invited the fair Charlotte, the stewardess with whom the reader is already acquainted, to have a dance, as the ladies were with us.

For more than three years woman had not profaned Nansen's ark, and the crew were demonstratively gallant. The cabins of the crew are situated around the saloon, whence they receive their supply of air, having no other communication with the outside. They are lighted by lamps fixed on the walls. The cabins of the captain, lieutenant and doctor, with maps, instruments, arms and different other objects, are very interesting; photographs and hundreds of weird objects constitute a droll ensemble.

In every cabin there is a portrait of the loved one.

The captain showed us the chart of the "Fram's" voyage as shown by the observations. Then he showed us a collection of very curious photographs representing the life and the stirring wanderings of the crew since their departure in 1893. The vessel in the midst of the ice, their winter quarters, the encampment, the glaciers, the icebergs, the observa-

tions, the mirage, the aurora borealis, the "Fram" buried under the ice, which almost annihilated her, the crew working 15 days with pickaxes to clear away the ice, the sledges, the dogs, the windmill at the mizzen mast for driving the electric dynamo, the moonlight, Nansen's departure, etc., are so many pictures which one cannot look at without heartfelt emotion, and which leave far behind everything written or pictured by Jules Verne in "Captain Hatteras."

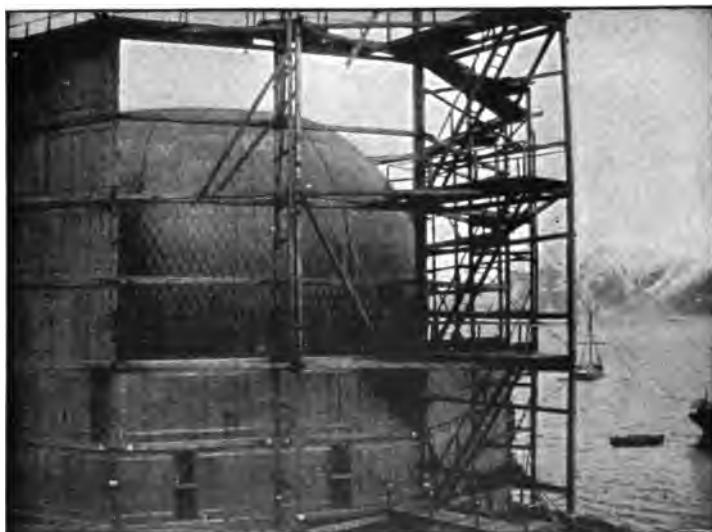
We leave the "Fram" at 9 P. M. after hearty farewells.

During the night the Nansen expedition peacefully took their course to the south. They have still on board provisions and coal for three years.

*Sunday, August 16th:*—The snow has ceased falling, and the sun, who does not renounce his rights, comes for an instant to restore another glimmer of hope; the wind,

although mild, vacillates and appears to tend north-wards. Another disappointment.

At last, on Monday, August 17th, after 21



THE BALLOON IN THE SHED DURING INFLATION.

days of waiting in feverish anxiety, Andrée resigns himself to open the valves of the balloon, which is quite full, and it is with regret easily understood that I watch the escape of

5000 cubic metres of gas, to produce which we had so much labour.

The folding and packing are not easy work. And then, as the case of the balloon had been destroyed, it was necessary to improvise one and take the whole material back on board the "Virgo." The planks of the shed, except those of the second story, required for the stability of the edifice, have been removed. The gas-apparatus is covered over, and all the delicate or fragile parts are shipped on board.

*Thursday, August 20th:*—The "Virgo" is loaded. The morning was spent in solidly tying up all objects which might be shifted by rolling. André is working in the shed up to the last moment. He is tying down the boards, shrouding the frames, and has half of the floor carried off so that the wind may sweep away the snow. Then he leaves, in a frame fixed to a post, a placard indicating the owner-

ship and the object of the shed, which he recommends to the care of the few fishermen who are still in the Islands of the North.

Finally, after lunch, at 4 o'clock the "Virgo" weighs anchor. We took a last photograph and threw a last look at Dane's Island, which soon disappeared in the fog. The expedition is at end.

## XII.

### THE STORM.

THE barometer has undergone a rapid depression since last night. Hardly had we rounded Amsterdam Island, taking a southwest course, when the vessel began to roll, and a few moments later we were assailed by the storm. The sky darkened, and the "Virgo" lurched terribly. I was again a prey to terrible sea-sickness, and retired to my cabin. All the kitchen utensils and earthenware are dancing a saraband round me. The "Virgo," which has lost some of her ballast, is rolling frightfully. The Captain has had a small jib placed at the bow, which lessens the rolling.

The wind is raging, and furious waves are sweeping the deck. Only a few of the crew

have escaped sickness, and in the evening the dining-room is empty.

Every two hours the ship is stopped, and Prof. Arrhénius takes samples of water at various depths; when the engine stops the rolling is still worse. We are overtaken by a snowstorm, and darkness is complete. After 24 hours on a south-westerly course, which is taking us away from Tromsö, the "Virgo" returns south-east, and the storm begins to subside. We see ships at a distance, and the temperature rises as we draw nearer to Norway.

It was on the 22nd that we passed near Beren Island, which was hidden by the fog. A quantity of birds surround our ship, which is again sailing fast.

### XIII.

#### MY LAST NIGHT ON THE "VIRGO."

THE storm has blown over. I have recovered my appetite and my good humour, and the night of the 23rd-24th is a very pleasant one.

For some time past I have seen no darkness, and this night is not without poetic surroundings.

A few stars are already twinkling in the zenith, when at about ten o'clock the sun disappears from the horizon, leaving a long twilight which lasts until dawn.

The sky is tinted with purple hues forming an immense rainbow stretching from west to east. Grey clouds of the weirdest forms travel through space, and lend animation to a view which it would be difficult to paint. The

full moon, which appears as the sun sets, shines brightly, casting her white light on the silvery waves. The disc is extremely large,



THE SHED AND THE BALLOON CASE.

and the outlines of the land are shown very distinctly.

Alone on the bridge, I give myself up to my dreams. The temperature has percepti-

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bly risen, and I experience the greatest comfort in thus sailing in the direction of the land. My companions are hardly able to force me out of my contemplation and make me go down to play cards in the dining-room, where a lamp is lit for the first time. The sea is flat as a lake, and it is a pleasure to navigate in this calm, after the storm we have endured.

*August 24th* :—It is dawn ; the moon is waning, and the day-star resumes possession of the scene. Birds still accompany us and are whirling round the “Virgo,” the black smoke of which unrolls itself like a plume of feathers in fancy rings.

We are approaching the Norwegian coast and can see the cliffs. Vessels and craft of every description are moving to and fro. We are coming back to life ; we feel that we are returning to civilisation. The breakfast at 9 o’clock is very animated. The weather is

## My Last Night on the “Virgo.” 175

warm, and we are all preparing to make our entrance into Tromsö.

At 11 o'clock we are at last in sight of the town and by noon the “Virgo” is berthed in the port opposite the “Fram,” which we had met at Dansk-Gatt on the 14th of August.

## XIV.

### THE RETURN.

WE are at once surrounded by friends, and learn with pleasure that Nansen is a guest on board the small white yacht "Otario," anchored near the "Fram," which she brought in tow from Hammerfest.

I regret much not to be able to shake hands with him, but I am leaving my companions after sincere and heartfelt farewells, to take my passage on the mail boat "Haakon Jarl," which is leaving in a few minutes ; Dr. Ekelund accompanies me to Trondhjem. One of the officers on board hands me letters and papers from France. Now then, I am going to have a foretaste of the pleasure of again seeing those dear to me ; I already feel that they are near me.

The "Haakon Jarl" is a superb steamer, conducting the mail service on the coasts of Norway, where railways are unknown.

Navigation through the fjords is full of charms and surprises. The landscape is of the most varied description: at one time tall rocks, snow-capped like the mountains of Spitzbergen; at another green wooded hills, fertile prairies with large herds of cattle grazing, and arable land in all its luxuriance. Little hamlets on the mountain sides, villages, chalets nestling mid fir trees and beeches, suggest the picturesque scenery of Switzerland.

The vessel threads her way through the islands and touches at all the stations on her route.

The plaintive sound of the siren re-echoes from the mountains, announcing her arrival, and small vessels surround the steamer to receive and deliver despatches, to take off passengers and their luggage and then to make for their various destinations.

The fore-deck is one mass of cases, heaps of bricks, casks, bales, bark, and articles of every description. With the exception of a few tardy tourists going from Tromsö to Trondhjem, as it is already late in the season, passengers seem to change at every station.

In some places the two banks are quite near and it requires all the skill of the captain to make his way between the beacons and avoid the numerous rocks scattered along the course. During the winter the passage is lighted by the lighthouses, but just now the nights are short and there is very little darkness. We pass a great many vessels going among the Loffoden Islands.

Meals are served in a sumptuous saloon, and the traditional amateur concert takes place after dinner. The evening is spent smoking cigars on deck, where nature is the leading feature on the programme. The scene is as full of variety as of surprises.

First is the sun, whose immense scarlet

disc sinks slowly into the wave, leaving in its track a fiery horizon. The whole sky is coloured with tints running the gamut from violet to light grey. Clouds assume fantastic forms, merge into one another, transform their outlines, then disappear; then the pale moon appears and shines on the silvery waters.

I stand for hours together in an ecstasy of admiration before these changing pictures, so little known to Parisians. A few stars are shining in the firmament. The air is pure, the night calm, and the atmosphere pleasant.

I can breathe freely and enjoy life. The light breeze, which brings us the perfumes from the pine woods, is barely enough to stir the surface of the sea. The wake of the ship is one long phosphorescent track behind us. Every turn of the propeller brings me nearer to my country, the main object of my thoughts.

The "Haakon Jarl" stays a few hours at Bodo, a small Scandinavian town beginning to show traces of civilisation. Doctor Eke-

lund and I landed. We were pleased to find some newspapers in which a meeting of Andrée and Nansen at Tromsö was referred to ; also the polar voyage chart of the celebrated Norwegian explorer. We afterwards attended an open air concert given by a family of German artists.

During our passage to Torghatten, a small troupe of the Salvation Army came on board and amused us a good deal with some of their musical performances and their devout, though rather extravagant practices.

The captain, a respectable lady, with her head concealed at the farther end of a huge poke-bonnet, which would not be out of place at Madame Tussaud's, was gravely seated in a rocking-chair, and presided over the spiritual concert given by the members of the congregation. The devout musicians, leaning against a heap of dried cod-fish, sang in more or less plaintive tunes the praises of the Lord, who doubtless understands all languages ; for

my part, I did not understand a single word of these hymns, but I could judge by the faces of the audience that the music which *emollit mores* did not convince them. It was a wonder we did not throw them some small change. We expected that one of the pleasant company would go round, hat in hand, to make a collection for the expenses of the institution or for any other more prosaic purposes.

A pretty young girl, of 16 or 17 years of age, with her hair arranged after the fashion of Miss Helyett, (doubtless the captain's niece), followed in a book, though with a distracted sort of devotion, the songs of the Salvation Army.

However, the amusements on board are not very numerous and this was the main item, as far as I was concerned, in the passage from Tromsö to Trondhjem, where the main body of the army awaited their brethren who were coming from the North to gain souls for Paradise.

*Thursday, August 27th* :—About 4 p. m. the town of Trondhjem appeared to the south-east. This is the haven so long wished for, although I have no right to complain of this latter portion of my voyage, during which no one suffered from the rolling of the vessel. The largest northern town in Norway, where the houses and buildings are made entirely of wood, has really an original appearance, and I sincerely regretted that I could not make a longer stay ; but a few hours afterwards I left my amiable guide, Dr. Ekelund, and took the single line railway, which, by a quick train, was to carry me within 17 hours over the 500 kilometres that divided me from Christiania.

The train started with some difficulty and could only ascend the first incline with the aid of a locomotive coupled on behind ; at last it proceeded at its normal rate of speed, but the line was so bad that my carriage was shaken terribly. The pine-wood structures seemed extremely fragile, and the bridges

thrown over the lakes and streams made one giddy.

After our two months' stay at Spitzbergen, where the vegetable kingdom is represented by moss and lichen, it was pleasant to come back to verdure, trees and flowers. Here nature is displayed in all her splendour, and I should never tire of admiring the marvellous landscapes, the châlets, the torrents and the waterfalls, which all contribute to the grandeur of Norwegian scenery.

The farmers gathering in the harvest, the wood-cutters cutting down trees, which they send down from the top of the mountain to the river, which conveys them to a port where they will be received and either sent to a saw-mill or shipped on board a trading vessel ; all here is life and movement—what a contrast to the frozen solitudes of Spitzbergen ! Hamar is the terminus of the narrow railway. Here we entered the elegant carriages that cross to Elsineur, and lastly, a few hours later, we

neared Christiania, and descended at full speed such a steep incline that at each mo-



M. HENRI LACHAMBRE, CONSTRUCTOR OF THE BALLOON  
"LE POLE NORD."

ment we asked ourselves with terror where we should go if the brakes failed to act.

On getting out at Christiania, we found ourselves in the midst of civilisation. At the station, I was assailed by an army of touts, from whom I only escaped by taking refuge in the fly from the Grand Hotel, where French is spoken, and where I found a degree of comfort to which I had become unaccustomed —the refined luxury of great cities. At breakfast I listened to a concert that would not have been out of place on our *grands boulevards*. I visited the town, which is very interesting, and made purchases of furs and articles of which Norway has the monopoly, various knick-knacks, little trifles that we are pleased to come across later on, for, having brought them ourselves from their native country, they in their mute language recall to us many recollections. I stayed two hours in Copenhagen and at last on Sunday, the 30th of August, I embarked at dawn, at the mouth of the canal at Kiel, on board the mail boat "Skirner," on which I made my last

passage. All the passengers on the boat were on deck to see the German fleet, which was drawn up at this station. Twenty iron-clads, a great many despatch-boats and torpedo-boats, drawn up at this entrance of the canal, excited great curiosity ; moreover, the spectacle was new to me as well as to most of the passengers, and it is not one that can be seen every day.

At last I arrived at Hamburg and came on to Paris, passing through Cologne and Liège.

The polar balloon returned to me a little while after, to be kept until the time when Andrée should start on his expedition.

On my advice, Andrée agreed that I should increase the volume of his balloon as much as possible by adding to its equator two zones of silk of treble thickness, thus bringing the cubic measurement of the balloon to about 5000 metres. The result of this addition was an increase in the ascending power of

nearly 300 kilometres, which is not to be despised.

The outer envelope was then re-varnished inside and out; then, the repairing being completed, towards the end of April, 1897, the balloon was sent off to Gothenburg to be shipped on board the "Svensksund."

Andrée's new companions, M. Fraenkel, acting member, and M. Svedenborg, assistant, came to Paris in the spring (as M. Strindberg did the preceding year), to go through a course of balloon practice; they made a series of ascents for practice from the aërostatic park at Vaugirard in the "Nobel" and the "Fram," under the direction of Messrs. Mac-huron, Lair and myself.

Notwithstanding my desire to revisit the polar regions, I gave up my place to my nephew and collaborator, who, more fortunate than myself, witnessed the departure of the balloon.

Awaiting the return of the courageous ex-

plorers, I conclude the account of this voyage which will constitute an epoch in my life and will leave behind it ineffaceable memories.

HENRI LACHAMBRE.

## SECOND PART.

### I.

#### DEPARTURE OF THE SECOND EXPEDITION.

On the 18th of May, the town of Gothenburg prepared to witness the second departure of the polar expedition. On the quays of the port, the inhabitants, assembled in crowds, testified to Andrée their admiration for his ever memorable undertaking.

The rebuffs he experienced last year had not shaken his faith ; he still stood firm, and was still the same, with his eagle eye and his iron will.

Notwithstanding his modesty, Andrée could not escape from the enthusiastic manifestations that were showered upon him. His perseverance disarmed the most sceptical.

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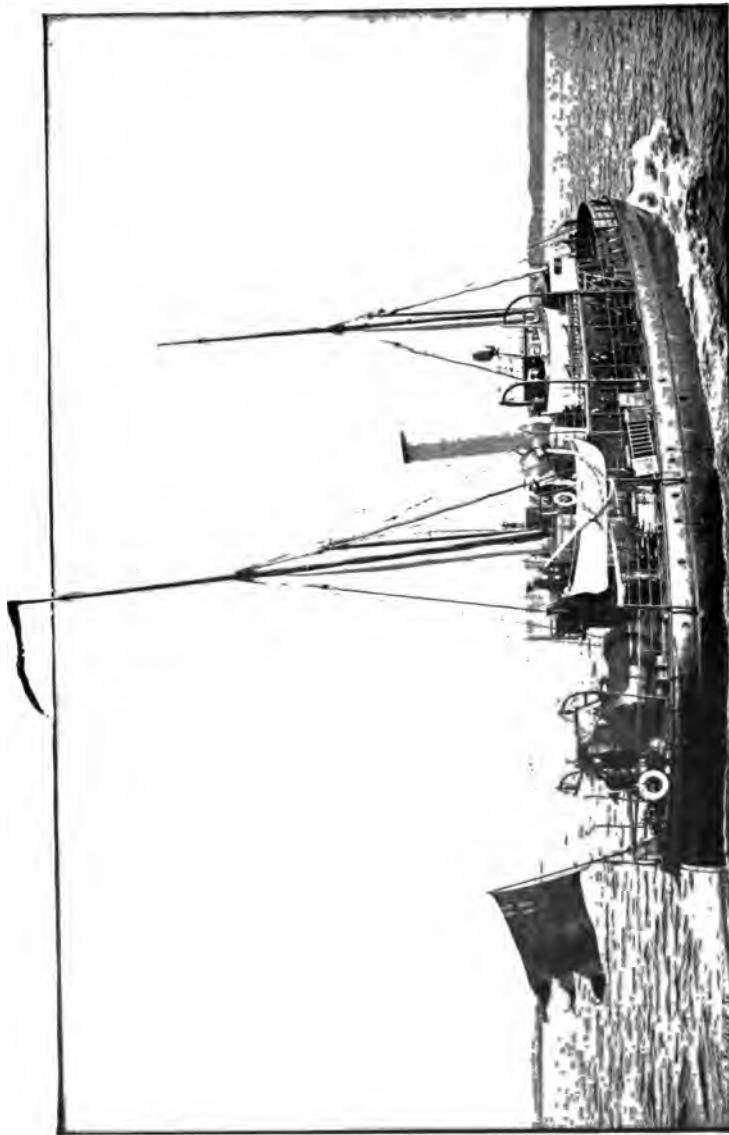
The good wishes of everybody followed him and his companions. People at last understood that this innovator is a man.

At 6 P. M. the "Svensksund," which had no other decoration than the national flag, weighed anchor amidst the tumultuous acclamations of the public. Most of the ships were decorated with flags and saluted the "Svensksund" as she passed them.

We rapidly left them behind.

As was the case last year, a number of vessels laden to the water's edge crowded round the port. Some, filled with the friends and relations of the explorers, accompanied us as far as the open sea, where the last adieux were uttered. One boat came alongside and took telegrams which we wished to send to our families and friends.

Soon the shores of Sweden, gilded by the rays of a beautiful sunset, gradually disappeared from the horizon, and we were scudding along on the open sea with all steam up,



THE SWEDISH GUN-BOAT SVENNER. SECOND EXPEDITION TO SPITZEREGEN, LEAVING GOTTFENBURG, MAY 18, 1897.



## Departure of the Second Expedition. 193

The “Svensksund” is a Swedish gun-boat of 300 tons, solidly built, which in winter renders great service to merchant vessels by cutting passages through the ice, with which the port of Gothenburg is blocked during the period of frost.

This boat, which is manned by picked men, and which is admirably suited for cruising in the Arctic regions, has been graciously placed at the disposal of the Andrée expedition by his Majesty, the King of Sweden.

On board were all kinds of valuable articles, scientific instruments, and the aërostatic apparatus; the balloon was placed in the best ventilated position, and will be able to make the voyage without the least danger.

If our vessel is strongly built and calculated to resist the pressure of ice, its flat form is less suited to the open sea, and we felt the rolling continually. I soon felt the first symptoms of sea-sickness, and retired to my cabin, where I remained until the following evening. On

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the 20th of May I woke up relieved, although my brain was still somewhat clouded, but this feeling was soon dissipated on deck by a fresh breeze and a bright sun.

We were in sight of the Norwegian coast, and we soon entered the fjords, where the voyage became more enjoyable between the high mountains that fringe the two opposite shores. Very little vegetation; moreover, the snow still covered all the more elevated parts, and those that do not catch the rays of the sun; spring was just commencing at this latitude.

Along the shore are scattered a few habitations, generally low and surrounded sparsely by shrubs, which were just beginning to put out their first green leaves.

At noon we arrived at Bergen, an important Norwegian port, which is advantageously situated, the vegetation being much more advanced here than in the districts we had been passing through. Here the banks were green

## Departure of the Second Expedition. 195

and beautifully tinted ; the background consisting of snow-covered mountains which reflect a dazzling light.

We left Bergen at two o'clock, after having engaged a pilot to steer us through the fjords.

The sky was clear, the sea calm and still ; moreover, here the wind has no sweep, and there is no fear of storms. We saw on all sides birds and wild ducks of various species, and occasionally dolphins showed themselves disporting in the water.

Suddenly the scene was changed.

We passed into a fog, which was slight at first, but gradually became denser and denser. We had to slacken our speed, and at 4 o'clock we were obliged to stop, the course becoming dangerous amidst the numerous islets and reefs with which the fjords are studded.

The Captain anchored his vessel for the night in a little bay sheltered by high and precipitous mountains, (latitude  $60^{\circ} 48'$ , longi-

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tude east of Greenwich  $4^{\circ} 48' 30''$ ). This delay enabled us to attend a grand dinner given as a welcome by the officers of the vessel, Captain C. A. Ehrensvärd, Lieutenants G. Norselius and G. Celsing, and Dr. J. Chr. Lembke, to the members of the expedition, M. S. A. Andrée, engineer, and head of the expedition, Messrs. Nils Strindberg of the University of Stockholm, and Knut Fraenkel, civil engineer, the companions of Andrée, Lieutenant Svedenborg, assistant, and the engineer Stake, to whom is entrusted the erection and management of the gas-apparatus. Fraenkel, in the name of his mother, who conceived the idea of this delicate attention, presented each member of the expedition with a souvenir; this was a silver napkin ring bearing on one side, in Swedish: "*Souvenir of the Polar Expedition, 1897*," and, on the other, engraved in a shield, the name of the recipient.

The dinner, which was extremely well ar-

## Departure of the Second Expedition. 197

ranged, did credit to Lieutenant Celsing, the steward of the ship; we had set before us the best of claret and champagne, the greater part of which was supplied from presents sent to the expedition.

Captain Ehrensvärd, in the name of all the officers, wished us welcome, and enthusiastic toasts were given in honour of Andrée and his companions, and also to the success of their undertaking. The members of the expedition were toasted, those engaged to be married in particular; these last toasts concerned Strindberg and myself more especially.

Andrée read several telegrams received at the time of the departure from Gothenburg, containing the last expressions of sympathy from distant friends.

The dinner went on amidst great gaiety. I felt delighted with the very cordial attitude of my neighbours, who spoke French as far as their acquaintance with our language permitted, so that I should be able to join in

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their conversation and follow what they said as far as possible.

Notwithstanding the fog that surrounded us, it was still daylight at 11 P. M. After having partaken on the bridge of the traditional Swedish punch, we each retired for the night.

The next morning, May 21st, the fog not having cleared, the Captain gave the order to leave the fjords and continue the voyage in the open sea. Slowly we quitted our haven, the last narrow creek was cleared, and we were soon scudding northwards at full speed, some miles from the shore.

On May 22nd we returned to the route through the fjords, now free from fog. We sighted Aalesund, an important fishing port. On the outskirts, on the shingles of the beach, were large square surfaces, of a whitish colour, outlined by slips of wood symmetrically arranged. These were quantities of salted cod being dried in the open air. This

## Departure of the Second Expedition. 199

industry constitutes one of the greatest resources of the inhabitants of these regions, who export the fish in large quantities to all parts of Europe.

In the evening we proceeded on our course in company with a Norwegian mail boat, which saluted the "Svensksund" several times; the passengers cheered Andrée lustily, thus testifying their interest in the expedition.

Next day, at one o'clock, we passed Brono, a little Norwegian port (latitude  $65^{\circ} 28'$ ); at this point the passage is very difficult, there being only a narrow channel between the two opposite shores, and much care is required to avoid striking against the rocks that can be seen under the water. Happily we had nothing to fear with our officers, who acted with consummate skill.

*May 24th*.—A splendid morning; but in this section, snow must have fallen the night before, for the banks were quite covered; vege-

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tation was not so advanced as in the districts we had passed, and the trees were fewer.

We crossed the limit of the Arctic circle. This event was celebrated by drinking champagne. In the evening the sky became overcast and a fine light rain began to fall ; later on, at a few hours' journey from Tromsö, we had some heavy falls of snow followed by gleams of sunshine, which reminded me of our snowstorms in France. But we entered the port of Tromsö under a blinding fall of snow ; the "Svensksund" had to grope its way in, it was impossible to see our course. At last at 11 p. m. we cast anchor and received a visit from the harbour-master, who brought us a voluminous packet of letters, telegrams and newspapers. I received from France news that gave me great pleasure. This was the last port at which we should touch ; we were going then direct to Spitzbergen, where we should receive no communications for several weeks.

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*May 25th* :—The falls of snow continue ; the inhabitants of Tromsö declared that it was a favourable omen for Andrée and that he would be successful, for at the time of Nansen's visit in 1893, a great deal of snow fell, which was a rare occurrence at that time of the year.

We went through the town and admired greatly a number of little villas surrounded by clusters of trees, which reminded us of the sunny slopes of Meudon.

The town was very lively and very busy. Ladies and young girls most elegantly dressed were walking about the streets, and also fishermen, sailors, etc. Met a cyclist. Where shall we find the limit of the bicycle ? I was astonished to see one in a country that has no practicable roads and very few fine days.

Below, on the sea, were docks built on piles ; a little port where about fifty fishing-boats were assembled. Further out was a mail boat arriving from Trondhjem.

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We visited the Museum, which contains all kinds of animals and birds belonging to the polar regions, teams of reindeer, Esquimaux huts, arms and fishing-tackle of the most remote periods.

All the houses in Tromsö are built of wood, and one wonders what would be left of the town if a fire should ever break out. Every year, tribes of Laplanders come from the North to exchange goods with the traders; they bring chiefly skins of reindeer, foxes, wolves and white bears, and many articles made of bone and reindeer's horns, on which are always carved representations of polar animals.

Later on, on July 2nd, on our return from Spitzbergen, I had the opportunity of visiting, at a few leagues from Tromsö, an encampment of these interesting nomads.

The excursion was organised and directed by our friend Lieutenant Norselius, the party consisting of Dr. Lembke, Lieutenant Sveden-

## Departure of the Second Expedition. 203

borg, the engineer Stake and myself. Herr Aagaard, the brother of the Consul of Tromsö, was kind enough to accompany us; as he knew a few words of the Lapp language he



LAPLANDERS' CAMP.

offered to act as interpreter. Some of the crew went with us.

I will not dwell here on the customs of these people, as they have already been described in several works. The Laplanders

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are very friendly, and peaceably inclined towards strangers.

In our honour they collected their reindeer together, a herd of 400 to 500, which were feeding on a mountain in the distance ; a chief, who was provided with a little telescope, used it skilfully to follow the movements of this great herd, which was driven by only two children and a few dogs. We saw, on a distant slope, these animals all collected together, advancing towards us like a swarm of ants in motion. A hill hid them from us for about half-an-hour ; they then reappeared at a distance of a few hundred yards, in the midst of a few scattered shrubs. The herd approached ; their horns, which are very large, kept interlacing, freeing themselves, and then becoming entangled with the shrubs, which were shaken by the compact and moving mass : it seemed like a moving forest.

A fenced enclosure is set apart for the animals. When they had to be driven into their

## Departure of the Second Expedition. 205

pen, a Laplander approached the head of the herd, caught one of the reindeer with the aid of a lasso, which he used as skilfully as the cowboy of the West, and then pulled it in, ringing a bell.

The effect was then most curious : the attention of the rest of the herd was attracted to the captive, which they followed at a distance, step by step, hesitating, and advancing as if under the influence of some peculiar fascination. The whole band was thus enticed into the enclosure, the outlet of which was then shut.

The captive reindeer which led the others in was then released, when great excitement seemed to prevail amongst all the animals; about a dozen of them got on to a little mound in the middle of the enclosure and remained there the prisoners of the others, who kept walking round them. This performance lasted for more than half-an-hour. In the meantime some of the Laplanders armed

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with lassos caught some of the females in order to milk them, and the whole herd was then set at liberty ; the reindeer then dispersed



AN ENORMOUS WHALE.

into the thickets, quickly climbed the mountain and soon disappeared from view.

We bought a few trifles from these people, who are very honest in their dealings, and at the same time very business-like. They lose no opportunity of doing a stroke of business ;

## Departure of the Second Expedition. 207

they even demanded payment if they were photographed, and if this was refused they tried to screen themselves from our cameras. The instantaneous process dismayed them very much.

After having left the camp of the Laplanders, on our return to the seashore, our curiosity was attracted to an enormous whale, which had been brought to the beach to be cut up. This mammal, which was not less than 70 feet long, had been killed a few days before in the northern seas.

## II.

### ARRIVAL AT SPITZBERGEN.

*May 26th* :—We were waiting in the port of Tromsö for news of the “Virgo,” which had left Gothenburg two days after us, on May 20th.

The day before, the “Svensksund” had laid in a stock of provisions and coal. On the after-deck, a large cage had been made for the reception of some sheep; we also took a great many fowls on board, so that we should be provided with fresh meat during our stay at Spitzbergen, as a change from tinned provisions.

Not having received any news of the “Virgo” we left Tromsö at 3 p. m., to go to meet her at an appointed place. A splendid day cheered our hearts, and most of the in-

habitants of the town, running along the quays, cheered the "Svensksund" as she departed.

The Captain then had a cask hoisted to the top of the foremast, in which the lookout man who was charged to give notice of any passing vessel amongst the floating ice, took up his station.

After this had been done, warm clothes were distributed amongst the crew ; each received large boots, a fur hood, gloves, etc. Our sailors seemed quite delighted with their new outfit.

At 5 o'clock we arrived at the appointed place ; the "Virgo" was not there. We took shelter in a bay whilst waiting for her.

The next day, May 27th, having awoke at 3 o'clock in the morning, I went on shore with Lieutenant Svedenborg. We went hunting over the mountains amidst boulders of rock and deep ravines. We saw very little vegetation : a few scattered bushes of prickly

shrubs, putting forth a few miserable shoots ; a great deal of moss and grass, in the damp parts surrounding the pools formed by the melting of the snow. Many springs swelled the streams, which, forming numerous waterfalls on the course, flowed down to the sea. We brought down several birds, but we lost some eider-ducks, for when wounded and pursued, they dive to reappear no more. They hide their bodies from the enemy, perishing at the bottom of the water by entangling themselves in the seaweed.

The "Virgo" joined us at 2 p. m., and her captain came on board for instructions ; at 6 o'clock we weighed anchor and set out for Spitzbergen. Andrée hoped that we should reach there quickly and without hindrance ; the north-north-east wind which had been blowing violently for some days would, in his opinion, drive away the floes of ice from the coast of Greenland.

For three days we were tormented by a

strong north-wind, which blew a gale. The sea was very rough. I was ill and could eat nothing for two days, a victim to sea-sickness. However, I got up in the evening of May 30th ; the vibrations of the vessel were then imperceptible to me. I was surprised at first and then pleased ; I seemed to be waking from a bad dream.

Our boat rolled terribly, with sudden movements due to its flat shape, movements which were all the more frequent owing to the waves being very short in the northern seas. I cannot, in spite of myself, help thinking of the slow and easy motion of our transatlantic liners, where one is quite at one's ease.

I was astonished, when, on arriving on deck, I saw the mountains that fringe Spitzbergen, and heard that in three hours we should reach Dansk-Gatt, a strait between Dane's Island and the Island of Amsterdam, to the north-west of Spitzbergen, in latitude  $79^{\circ} 43'$ .

The "Virgo" followed us at some distance ; she also rolled a great deal. The wind was high and cold. Some blocks of ice floated here and there, but not many ; by a fortunate circumstance the Arctic Ocean was quite free. Andrée had predicted that it would be so, and he was pleased to see that he would lose no time this year. Nevertheless, those who had never visited these shores were somewhat deceived. They had expected to be encountering icebergs and meeting with unheard-of difficulties, in fact they looked for something very different from ordinary voyages ; something which would keep constantly before their minds the fact that they were in the "Frozen Ocean."

Our wishes were soon granted. The prevailing north-east wind had driven the ice floes into the open sea ; the ice round the coast being sheltered by the mountains remained, and the entrance to the Dansk-Gatt was quite blocked up.

We had to slacken our speed. The vessels could only cut a passage through, pushing before them blocks of ice which are scattered, driven one against another, and broken with a loud noise, terrifying the various polar birds or troubling the siesta of various seals which quickly dive and disappear behind other floes.

I took some photographs, the success of which was doubtful, as it snowed fast. Fortunately we were quite close to Virgo Bay, and after an hour of slow, winding and difficult progress, going round large masses of ice that could not be driven aside, we perceived the Ballong-hus (balloon-shed); it was still standing. To the right, Pike House was half hidden by snow.

We each provided ourselves with a telescope or field-glass. The shed especially occupied our attention. It had suffered some damage and we noticed an alteration in it, but at that distance it was impossible to ascertain the extent of the injury.

We slowly approached the coast, took soundings every minute, and at last at 6 p. m., the Captain gave the order to stop. The anchors were cast, as we should probably remain there some time; only about a hundred yards separated us from the shore.

The "Virgo," which should have followed us closely, in order to profit by the passage made by the "Svensksund," remained some distance behind. She seemed to be impeded by the ice and advanced very slowly. She pushed along for another hour before casting her anchor. Less fortunate than we were, her screw, which had neither the flexibility nor the resistance of ours, had been sorely damaged by the ice.

The various emotions produced by this eventful voyage and the keen air of Spitzbergen had sharpened all our appetites. Lieutenant Celsing ordered us a grand dinner, washed down with good wine and champagne, to celebrate our arrival at Dane's Island. I

own that for my part, I did justice to it, after having been so severely tried by the sea.

After dinner we went on shore. Our boat found a passage through the ice, after much groping and winding. We at last reached the shore, which was edged with ice covered by a layer of snow, in which we sank half-way up to our knees. After a rapid glance at Pike House, which we found in good condition, we directed our steps towards the Ballong-hus, which interested us more.

The poor shed, the base of which had partly disappeared under the snow, had suffered greatly. It had been wrenched round and seemed to lean towards the east. Last year the boarding of the second floor had been left to strengthen it. Several of these planks had been broken or torn away by the wind ; some had been carried to some distance, for we could see here and there a corner of one sticking up in the snow.

On the western side we discovered a split

in a beam where it joined the framework. It was this accident that caused the wrenching of the roof-timbers and occasioned the greater part of the damage. However, these damages could be repaired, and Andrée, after his examination, expressed his great satisfaction with the work of Svedberg, the builder of this frail edifice, which was not intended to withstand a winter, and which must have resisted great stress of wind and weather. It is true, that last year before leaving Spitzbergen, Andrée had strengthened the shed as much as his resources and the materials at his disposal allowed, as has been seen by the foregoing account.

### III.

#### PREPARATIONS AT DANE'S ISLAND.

*May 31st* :—The day after we arrived, every one set to work.

We turned our attention first to carpentering. With the aid of pulleys and screw-jacks, we succeeded in restoring to a certain extent the beams of wood to the positions they normally occupied ; then they were fixed by steel guys.

A detachment of sailors cleared away the snow, which in the shed was over six feet deep. What rendered the work long and tedious was a thick layer of ice under the snow, which had to be broken with the ice-pick. The snow was taken away in sledges.

There was a great deal to do, but our workmen were skillful and were directed by ex-

perienced masters. Andrée did not leave the scene of operations all day, and watched every detail attentively; in the evening he was happy to inform us that the damage would be more easily repaired than he had at first thought, and that in a fortnight Ballong-hus would be ready to receive the balloon.

*June 1st* :—The work was resumed and carried on diligently.

While the carpenters were busy repairing the shed, detachments of sailors proceeded to unload the materials contained in each vessel. This last operation was greatly hindered by the floating ice, which, under the action of the wind, was continually changing its position, and sometimes threatened to crush our little boats, which had to be hoisted on deck when we were not using them. Then the wind, which had been north-east, veered round to the east; it drove the ice in another direction, seeming to be trying to send it out of our

way. Every now and then came gusts of snow, but these did not stop the work.

The temperature varied from  $-1^{\circ}$  C. to

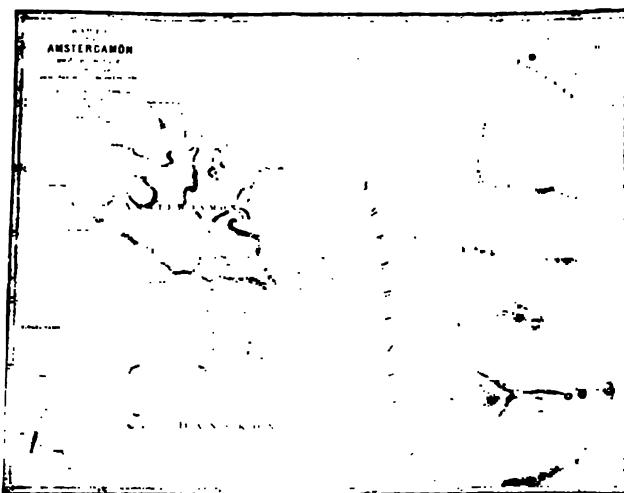


CHART OF DANE'S ISLAND, DRAWN BY HERR STRINDBERG IN 1896,  
WHERE THE PREPARATIONS FOR THE INTELL EXPLA-  
TION WERE CARRIED OUT.

$+2^{\circ}$  C.; that of the sea-water was  $-2^{\circ}$  C.; the wind alone seemed to cut our faces.

Not being able to take part in the work that was going on, I passed my time as best

I could. Pike House, the description of which has already been given, was a curiosity which attracted my attention. I read on its walls the names inscribed there by visitors. I was pleased to find amongst them my uncle's signature, and I yielded to the temptation of adding my own.

I spent the morning in transforming one of the rooms into a photographic laboratory.

The carrier pigeons of the expedition were placed in the attic, which they had occupied last year.

Behind Pike House, buried under the snow, were the remains of the gas-apparatus. After clearing away the snow, we found that the parts had not suffered much, and that they could be used with the apparatus we had brought.

That evening, accompanied by Strindberg, Fraenkel and Svedenborg, we set out on an excursion over the snow and ice, along the east coast. We went as far as the little

## Preparations at Dane's Island. 221

Albert Island, which was still united to Dane's Island by ice. Strindberg, who is a very good shot, succeeded in killing a seal, which we could not take with us for want of a boat.



STARTING ON A SHOOTING EXPEDITION.

He returned to the "Svensksund" for a boat, but the distance was great and the dead seal soon sank.

Returning to the vessel, we perceived a fine silver fox, which was sniffing along our tracks. He was out of the reach of our bullets, and,

222     Preparations at Dane's Island.

as soon as he saw us, he ran off, being greatly terrified by such unexpected visitors. He stopped from time to time to turn round and make sure that he had not been the victim of an illusion, and then went on his way more swiftly still and escaped to the mountains.

On our return to Virgo Bay, it was difficult to reach the "Svensksund." The wind, which had gone round to the north a little while before, had brought a good deal of ice; there were no longer any passages sufficiently wide to allow a boat to be steered through them. We stepped on to one mass of ice, and by jumping from one to the other, we were able to regain the vessel.

*June 2nd:*—The wind had changed again from north to east. The bay had become cleared of a great portion of the ice with which it was filled a few hours before.

A little steam launch brought by the "Svensksund" was then able to render useful service. The unloading went on more

quickly ; we hastened on that of the "Virgo" especially, as she was to leave us directly afterwards, carrying news of us to our friends.

Strindberg was engaged in some photographic studies of the snow and ice ; I spent part of the day with him developing the plates.

*June 3rd* :—The sky was very clear at 2 o'clock in the morning ; there was not a cloud upon the horizon, and there was nothing to warn us that a few hours later a strong north wind would bring us violent squalls laden with snow, and, at the same time, bring back the ice that had been driven away from us. This bad weather somewhat hindered the work during the morning. After breakfast, there was a little interlude at the expense of a seal which had gone to sleep on a block of ice. It was more than 200 yards from the ship, happily for itself, for ten guns or carbines were leveled at it from the deck, and at the word of command from the Captain ten

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balls saluted the newcomer, who immediately disappeared, having no doubt formed a bad opinion of the human race.

In the evening the captain and the first-



ON THE ICE.

lieutenant of the "Virgo" came to dine with us. At this meal some bread was eaten called "French bread," supplied to the expedition by M. Schumacher, a Stockholm baker; a large quantity of it was taken on board. This

bread, sealed up hermetically in light boxes of tinned copper, was in a perfect state of preservation, although then a month old.

*June 4th* :—During the night we had a violent north-east wind which drove the ice into our bay, quite stopping the unloading of large packages. By means of planks a road was formed on the ice, and all the light packages were carried on the men's backs.

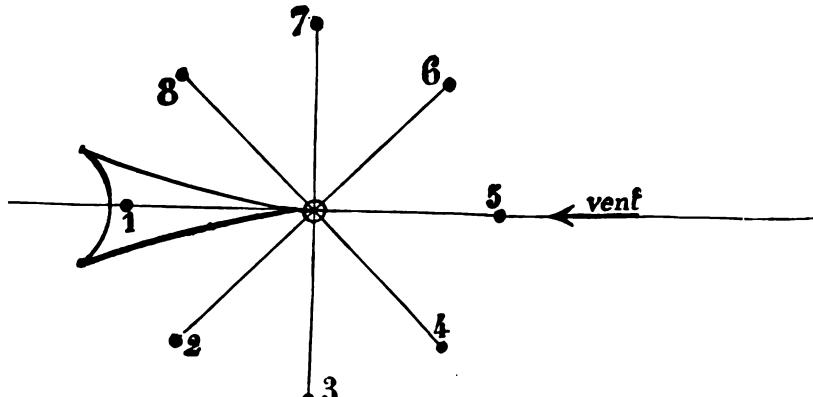
This violent wind, however, rendered us real service, and did a great deal towards the repairing of the shed. It quite restored to their places the roof-timbers, and they were soon fixed in their places by guys, and, at the same time, the joists were replaced so as to increase the solidity of the structure.

*June 5th* :—The weather was very fine; the thermometer showed 3° C. above zero.

Strindberg made the ascent of a neighbouring hill situated to the west of the place

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occupied by our ship. At the summit, 200 metres above the sea-level, he fixed a mast on which was placed an apparatus for observing the direction of the wind. This ingenious instrument consists of a vane, carrying with it



THE APPARATUS.

in its movements a horizontal disc divided into eight equal sections. On the outer circumference, at the points of division, are fixed vertically the figures from 1 to 8, cut into plates of copper. The diameter 1-5 falls in the vertical plane of the vane, and figure 5

always faces the wind. It is easy by means of a compass to determine the direction from any point from which we can read the figures of the disc. It is sufficient to observe the angle that is made with the magnetic meridian by the visual radius, going to the number facing you, and to deduce from it by a very simple calculation the angle of the line 1-5, *i.e.*, the angle of the direction of the wind with the north. For example, we are to the east of the post of observation ; number 3 is facing us ; number 5, which always faces the wind, will be at the north, the point from which the wind comes.

Every day the explorers, by turns every four hours, make meteorological observations. All the instruments were examined, and the results carefully noted. Strindberg set up a tent on the shore, where he spent several hours a day taking magnetic observations.

Work was suspended during the 6th and 7th of June, for the Whitsuntide holidays.

Every one sought for some amusement to pass the time ; some of the sailors found one which was somewhat rough. They ascended



THE "SVENSKSUND" AND "VIRGO" IN THE ICE AT DANSK-GATT.

a hill covered with snow situated behind Ballong-hus ; on arriving at the summit they slid down, toboggan fashion, from a height of 200 metres, each trying to make a record

speed. This game was not without its comic side. Often one of the men lost his position, rolling over and over to the bottom; fortunately in the snow there was no danger.

On June 8th all the little colony went back to work. The weather was fine, with a north-wind that piled up the ice round the ships. The greater number of light packages were, however, unloaded, but there was still heavy luggage which could not be moved.

On the 9th of June one of the gas generators was taken off, a large wooden tank lined with lead, which had to be handled with care, its own weight rendering it fragile. After it had been let down into a boat, a passage was with difficulty cut for it through the ice to the shore.

The next day, other parts of the gas-apparatus, no less bulky, were taken off the "Virgo"; the difficulties attending their unloading were still greater than before. Armed with ice-picks, some of the sailors tried to

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break up the smaller pieces ; others, provided with saws made specially for the purpose, attacked enormous masses. The boat advanced



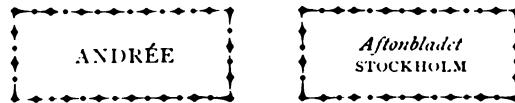
DANE'S ISLAND BY THE LIGHT OF THE MIDNIGHT SUN.

very slowly, but this extra work involved an expenditure of precious time.

At last, by the evening of that day, all the parts of the gas-apparatus were landed. The

engineer, Stake, assisted by the mechanics, proceeded to fix it up. Before this could be done, it was necessary to clear away an enormous quantity of snow which occupied the space allotted to this installation, and which, on being swept in a circle round it, formed a regular enclosure, a temporary fortification.

*June 11th* :—Strindberg and Fraenkel turned their attention to the carrier pigeons, and with the aid of india-rubber wafers, they fixed to the wing and tail feathers several labels bearing the following inscriptions :



The pigeons moreover were numbered consecutively. Their destination was the office of the "Aftonbladet," and they came from a dove-cot situated at Maréchamm, and belong-

232     Preparations at Dane's Island.

ing to M. Uno Godenhejlm, formerly a postmaster.

I gave myself up on this day to the study of a sport which is quite Scandinavian, the "ski" (ice-shoes). Strindberg kindly gave me both theoretical and practical lessons. After many downfalls on snowy slopes, my course of instruction was completed; I had only to practise. This agreeable mode of locomotion is very useful for making long journeys over the snow.

I employed part of the day in making a snare for foxes, consisting simply of a box closed on one side by a metal grating and on the other by a sliding door. This latter would close automatically when the animal touched a bird, serving as a bait, fastened to the bottom of the cage. In the evening, I tried the sledges which were to be taken in the balloon. I harnessed myself to one of them and took my snare half a league away to the hills, where I set it so as to be able to

observe it from the "Svensksund," and to see by means of a telescope when the door of the cage was shut.

I had not long to wait; the next morning the cage was closed. I went up to the mountain. I soon perceived through the grating of the cage a cunning little head and two bright eyes which were attentively watching my every movement.

The prisoner was a young fox. There are several species of them at Spitzbergen; we had already seen three kinds. One was a fine glossy black, another silvery white, and a third with yellow and brown spots; the little captive belonged to this last category. Seeing himself discovered, my fox darted against the grating, growling at my approach and showing his pretty little sharp teeth. With many precautions, putting my hands through the bars of the cage, I succeeded in muzzling him and in tying his paws together with cords. Having thus made it impossible for him to

do any harm, I led him over the snow to Pike House, where my arrival with my prisoner at the end of a long string excited much curiosity and caused considerable mirth.

I hoped to take this young fox back to France. He was put in a cage, where he received many visits from the curious. One of the latter not having closed the door with sufficient care, the Spitzbergen fox, in no way inferior to those of our own country in point of cunning, succeeded in opening it and recovered his liberty; he was even seen to pause ironically for a few moments in front of Ballong-hus, where the changes that had been made seemed to interest him.

## IV.

### THE LANDING AND PREPARATION OF THE BAL- LOON—THE INFLATION.

*June 12th* :—Two weeks had elapsed since our arrival at Dane's Island ; the work connected with the shed had been pressed forward, and as Andrée had announced, Ballong-hus was ready to receive the balloon. A large tent canvas made in eight equal sections was fixed over its entire circumference half-way up the shed ; it was drawn up in the centre by the aid of pulleys connected with the top of the building. We were thus comfortably sheltered from snow or rain whilst getting the balloon ready.

The unloading of the "Virgo" was finished and the ship was ready to start as soon as the ice should disperse. We went on board to drink coffee and a parting glass of punch.

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*June 13th* :—On Sunday we had arranged to take a trip with the steam launch, but it was impossible to leave our prison; the north-wind, which reigned supreme and which had blown with more violence during the last few



VESSELS IN THE ICE.

days, had brought us enormous blocks of ice, detached from the ice-field and from the glaciers. Strindberg and I took several photographs of the floating ice, which occupied our whole day.

The “Virgo” still a prisoner.

*June 14th* :—We could not wait any longer and lose the advantage of our hard work ; the case containing the balloon had to be landed.

This enormous package, weighing no less than 2000 kilogrammes, was quite easily let down from the ship on to a boat ; the great difficulty was to get it to land, although the distance to be traversed scarcely exceeded 100 metres.

The streams left between the ice were too narrow and sometimes even they were completely blocked up.

Lieutenant Norselius at the head of a band of chosen men, directed the operations ; the picks and saws did their work, widening the narrow streams into which the boat was pushed and proceeded along the cleared space until a fresh obstacle was encountered. It was a real wall of ice with which we had to deal now ; ice-picks and saws were powerless to open a path. Lieutenant Norselius thought

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of an ingenious plan which he at once put into execution ; with the aid of a dynamite cartridge carefully laid, he succeeded in breaking into small pieces that part of the ice-field.



THE BALLOON CASE IN THE ICE.

It was then easy to part the pieces of ice and the boat slowly advanced, but the surrounding pieces, which had been held back by the larger mass, drew together and the boat was caught between them and then lifted up ; the case leant over on one side and threatened to

fall over ; some of the sailors hung on to the other side, trying to restore its equilibrium, whilst others pulled or pushed the boat which was still blocked up. The case was tied with cables, one end of which was connected with the ship and the other with the shore. Then the whole party harnessed themselves to a third rope, trying by their united efforts to start the boat. At last we felt it move—it was a moment of anxiety for us all ; then, it glided unchecked over the ice into an open space, once more narrowly escaping being capsized with its burden. Happily some of the sailors had time to hang on to the end of a long pole laid across the top of the case, and with the help of the cables, equilibrium was preserved.

Our fears are dispersing ; all serious obstacles are now surmounted and the rest of the work is easy. A few more hours of toil and patience and after a whole day's labour the balloon is at length landed.

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Every one is glad to see her in safety after the dangers she has passed through. Andrée warmly thanks Lieutenant Norselius for the zeal and skill he has displayed in this difficult operation.



FRESH OBSTACLES.

*June 15<sup>th</sup>* :—The balloon case, which had been left on the bank on the previous evening, is now to be conveyed to the shed erected a few metres higher up. The first part of the distance is soon covered as the case is dragged over greased timbers laid down in the snow ;

the remainder of the journey is rendered difficult by the huge stones by which the route is obstructed. These difficulties, however, are as nothing compared with those of last night, and the case was soon got below the shed and afterwards hoisted on to the flooring.

A few hours later the balloon was stretched and the folds spread out. It was in perfect condition. The apertures were closed up with discs consisting of wood, or with false valves ; it was then partly inflated with air with a very simple ventilator designed by Andrée, but the process was a very long one as the ventilator was feeble.

*June 16th* :—I spent the day inside the balloon, where, with the help of ten seamen, I put another coat of varnish on the seams.

The “Virgo,” which has been waiting four days in her prison of ice, can at last start to-day ; in fact, her time is up, for she must be delivered at Tromsö before the 20th of June,

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otherwise Andrée will have to pay a heavy fine for every day's delay.

It took two days to revarnish the seams. On the 18th of June all the air in the balloon was let out so as to prepare for the inflation by gas ; the net is again placed over it and the valves inserted. The inflating tubes are brought under the floor of the shed and connected with the nozzle through an opening made in the centre of the floor. The inflation by gas began at 7 o'clock on the morning of the 19th of June.

Stake, the engineer, is superintending the manufacture of the hydrogen. It is produced by the action of sulphuric acid diluted with water on iron. The acid, the strength of which is 60°, is brought in iron drums, each containing 100 kilogrammes. We have 80,000 kilogrammes of it and 30,000 would suffice to inflate the balloon.

The gas-apparatus was constructed at Stockholm from well-known designs. The acid is



VIEW OF THE HYDROGEN GENERATOR FOR INFLATING THE BALLOON.



raised, by means of a hand pump, into a mixing-tank, "C," made to hold 1600 litres, and meanwhile water is introduced which reduces the contents to a solution representing about 16%.

The acidulated compound passes thence into two lead-lined generators, "G," containing the iron which is dropped in as and when required through a hopper placed half way up and closed with an hydraulic joint. The iron shavings placed into the outside part of this hopper are pushed down, thus forcing the shavings contained in the inner part into the generator. Each generator is closed by a lid with an hydraulic joint. The apparatus is freed from the mud deposited at the bottom by means of a self-closing cock.

The hydrogen produced by this reaction passes into a purifier, "L," filled with coke and provided with a tapering grate; through this grate the gas makes its way into the washing compartment and passes through the

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column of coke, in which is circulating the water that falls from the rose attached to the top. The overflow runs away through a pipe, at the bottom of the apparatus. A steam pump feeds the purifier and the mixing-tank with sea water, which, by the way, is quite suitable for this process.

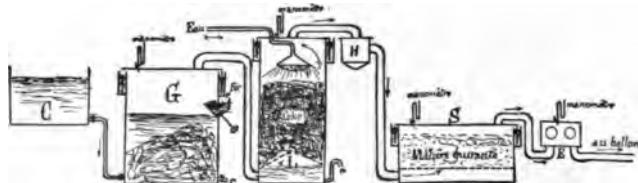


DIAGRAM SHOWING THE ARRANGEMENT OF THE HYDROGEN GENERATOR.

On leaving the purifier, the hydrogen traverses a chamber, "H," from which two tubes lead to the dryers, "S"; these dryers consist of rectangular boxes containing purifying materials and quick-lime laid on a grating near the bottom.

Before being conveyed into the balloon the gas thus prepared passes through two testing

## The Preparation of the Balloon. 247

chambers, "E," each of which contains a thermometer, a hygrometer and some litmus paper ; glass sight-holes are provided to facilitate inspection.

Indicators fixed in various positions show the pressure of the gas current.

This voluminous apparatus is capable of producing 150 to 200 cubic metres of gas per hour, but Andrée will not allow the output to exceed 60 cubic metres per hour, his object being to secure a gas which has had ample time for proper washing and purifying.

*June 20th* :—During the first 24 hours about 1200 cubic metres of gas were generated.

Andrée and Fraenkel are busy to-day superintending the inflation of the balloon ; the rest are preparing for a trip northwards with the steam barge, commanded by Lieutenant Nor selius.

They propose reaching Red Bay, to the

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north-east of Spitzbergen, near the 80° parallel.

We left Virgo Bay at 9 in the morning and steered to the north along the coast of



LANDING THE CAR.

Smeerenburg. As we went along, the guns brought down several birds. At 1 o'clock we were at Reel Bay, which was one immense ice plain reaching up to the islands at the en-

trance to the bay. It was on one of these islands, not shown in any polar chart, that we landed and scared away a flock of eiders and a fox who was lying in ambush for them.

From our position we commanded a full view of the entire expanse of the gulf.

Here nature presents a wilder aspect than we have ever seen her under. The bay opens out towards the north.

East and west the bay is flanked with lofty mountains whose summits are lost in the fog ; wide fissures afford shelter to enormous quantities of birds of various species, who build their nests at different altitudes. Some perch on the sharp edges of the rock while others describe huge curves or shoot along after the manner of birds of prey. We noticed some wild geese, some gulls, auks and others, all filling the air with sharp piercing cries, deafening one with their fiendish concert.

About 10 kilometres to the south and forming the background to the gulf, a gigantic

## 250 The Preparation of the Balloon.

glacier indented with crevasses, rises like a mighty wall. The glacier is lit by a few rays of the sun filtering through a curtain of fog and reflects them in tints of blue. We take a long look at this great pale-looking expanse imperceptibly gliding towards the sea, impelled by a slow and mysterious force, while from it huge ice tracts are always breaking away and crashing down with a roar that seems like an earthquake.

It would be interesting to make the tour of Red Bay, but we are short of time, and we ought to be provided with snow-shoes to carry us over the snow which covers the ice. We saw in the snow very recent footprints of bears, but we vainly searched the horizon with our glasses ; Bruin was invisible.

After a frugal repast on a rock in the open air we made ready for our return. A cold chilling fog settled down on the sea and enveloped us for two hours ; we were very anxious to get back on board the "Svensksund"

## The Preparation of the Balloon. 251

to warm ourselves once more, for we had not brought any warm clothing.

*June 21st and 22nd.*—The inflation of the balloon still progressing. As it fills we revarnish the outside seams.

Meantime, Andrée is preparing and fitting out the car, adjusting the suspension ring and the rope attachments. On the other hand, Strindberg, Fraenkel and Svedenborg are busy coating the guide-ropes with a compound of grease and vaseline.

To save time in the work to be done when starting, the carpenters are demolishing the upper portion of the shed on the north side, as Andrée thinks this useless.

## V.

### AMUSEMENTS AT SPITZBERGEN—TESTING THE GAS-TIGHTNESS OF THE BALLOON—ARRIVAL OF THE VESSELS “EXPRESS” AND “LOFQ- TEN.”

THE inflation of the balloon was completed on the 22nd of June at midnight. The dome can be seen above the shed. Our balloon is now only awaiting a suitable moment for its launching forth into space.

Next morning, two Swedish flags floated triumphantly over the shed. But before a start can be made, many minor matters still remain to be attended to, small details which always take up a very long time, and to-day, work was stopped at noon. In compliance with Swedish custom we have been celebrating the eve of the feast of St. John, one of the most important Scandinavian festivals.

Time hangs heavily during these days of

rest. Amusements are rare and but little varied at Spitzbergen. The sailors themselves are compelled to forego one of their favourite sports ; the snow of the mountains having partly melted, has laid bare large sharp-edged stones, among which it would be dangerous to practise tobogganing. However, they have found another amusement. On the summit of a neighbouring mountain which rises up almost in a peak, and which they succeed in climbing, they displace enormous pieces of rock, and these roll down dragging with them an avalanche of stone, accompanied by prolonged and deafening sounds which are re-echoed, like the rolling of thunder—and thus do our sailors amuse themselves.

We were no less limited than the sailors, in our choice of amusements in these deserted regions, far away from all that makes life seem worth living. We are longing for our nearest and dearest—it is now a month since we became exiles.

254 Amusements: Tests: Arrivals.

Absorbed by vague thoughts, my looks mechanically tend towards the open sea, hoping to descry a sail coming to call on us and bring us news from home. But the horizon is bare, except that here and there a few icebergs are floating on the waves.

All around us, mountains, barren rocks, snow and glaciers ; no vegetation to gladden our sight, nothing but a few varieties of moss bearing tiny white, violet and yellow flowers —the yellow ones, larger than the rest, much resemble the butter-cups with which our meadows are dotted in spring. The flora is excessively poor in these icy regions—what a contrast to the luxuriant vegetation of Brazil, the rich and prolific nature of which country I was admiring three years ago, being then engaged on a mission on behalf of the Brazilian military authorities.

In order to overcome the melancholy which seems to come over me to-night, I am glad to start with Fraenkel on a boating excursion.

We take with us some provisions, and at 9 o'clock we set off at random in a glorious sun. We shoot some birds, chiefly eider-ducks. Near the Albert Isle, in the Smeerenburg, a group of seals disporting themselves on the ice, attracts our attention. It is impossible to get near them by water, and we therefore alight and drag our boat up on the ice. But the wary animals plunge under as soon as we approach. It is no use waiting for them near their holes, as the seal will travel a long way under water in order to re-emerge some hundreds of yards away from the place where he took to the water ; he then proceeds to make a fresh hole. With his breath alone, emitted and inhaled repeatedly, he can pierce masses of this ice measuring at least a yard in thickness.

Not far from the place where the seals disappeared, there is an opening free from ice ; we decide, at all events, to wait some minutes on the brink of this pond. Two of the seals

## 256 Amusements: Tests: Arrivals.

appear and are at once greeted by us with bullets. The water is dyed red with blood over a large expanse, but the two animals, though wounded in the head, have strength enough left to dive under the ice, there to die.

Baffled in this attempt, we return to our boat, and continue our trip in the Smeerenburg in a south-easterly direction. We wished to reach the glaciers haunted by bears, but a thick fog surprised us on our way and stopped our progress. We had no compass; in order to get back and avoid losing ourselves in the fog we were obliged to follow the coast-line, which considerably increases the distance to be covered. Objects are beginning to assume fantastic forms in the fog. At one part of the coast which I know perfectly well, having roamed over it several times, a rock of from 5 to 6 metres high appears to us a mountain of respectable dimensions; further on, the ice round the coast is about six feet above the water, and this looks to us like a colossal gla-

cier ; then we come across some eider-ducks, which seem to assume awful dimensions, appearing to us about 10 metres high. Finally, becoming more and more subject to these curious effects of optical hallucination, taking small blocks of ice for enormous icebergs, we imagine we can identify a walrus in a moving mass which appears to be the size of a small whale. We approach the animal, whose true nature we recognise when its size still appears to be 4 or 5 metres—it is a small bird of the size of a pigeon.

After several hours of a dispiriting journey made in the damp and penetrating cold, tossed to and fro by the waves, which have become very rough, while the water, lashed by a contrary wind, is constantly dashing in our faces, we arrive near Virgo Bay at the very moment when the fog commences to clear, and with it these phantasmagoric effects gradually disappear.

We feel as if awakening from a hideous

258 Amusements: Tests: Arrivals.

nightmare, and are glad to see the sun once more, shedding its warm rays upon us.

We return on board the "Svensksund" at 6 A. M., after roaming about on the sea for 9 hours, and just at the time when all on board are waking up.

We celebrate St. John's day as far as we can in the circumstances. At night an abundant dinner is served, and we are much astonished at seeing such a variety of dishes set before us, although more than a month has elapsed since we last renewed our supplies. This is a surprise reserved for us by Lieutenant Celsing, who acts as steward on board our craft.

*June 25th* :—A most pleasant awakening ; a sailor puts into my hands a parcel of letters and journals—news from France. None but they who have had the experience of being separated from their nearest and dearest, far from their native land, in a dull and desolate

region like Spitzbergen, can ever know the joy experienced when a chance mail unexpectedly brings news from those one holds most dear !

I eagerly scan the letters and journals before troubling myself about ascertaining the name of the vessel which brought them. I then learn that it is a little sloop, the "Express," chartered at Tromsö by three German tourists, Messrs. Th. Lerner, Dr. Fr. Violet and G. Meisenbach, who have come to Spitzbergen for a few weeks. The small steamer has been severely tried during her passage by a storm which swept away two of her boats. She leaves to-night for the north, for Mossel Bay, where there is a "refuge" containing a store of provisions and boats, intended for the ship-wrecked. Our tourists will there find boats to replace those they have lost.

*June 26th* :—Stake, the engineer, spent yesterday in preparing some wide strips of light

material, which, after being impregnated with acetate of lead, are blackened at those parts which come in contact with the sulphuretted hydrogen gas.

Placed on the seams of the balloon, these strips enabled us to perceive the slightest traces of an escape of gas. But the practical application of this method was difficult and required some care. For getting on to the balloon, the extremities of a horizontal cable crossing the shed transversely were fixed to the two highest poles at the top; a pulley supporting a double rope was passed over the cable; we placed one leg in the loop and slid through space to the balloon. When we wished to return, two men drew back the pulley by means of a pulley-tackle. Some sailors found it a quicker and more satisfactory plan to descend by the meshes of the net.

Eight and sometimes ten of us were at work on the dome of the inflated balloon, and we

had to perform compulsory gymnastic feats in order to support ourselves amidst the cordage of the net.

The sailors, being accustomed to this kind of exercise, climb about the balloon quite at



ON THE BALLOON.

their ease; but I must confess that at first I had a slight feeling of dizziness. This, however, soon passed off.

It was a curious sight to see so many men on this silken envelope, which is the only

barrier to the gas ; the fact is unprecedented in the history of balloons.

If the work that we were engaged upon was long and difficult, the result was no less satisfactory. We found in this manner some very slight escapes of gas, which were at once carefully stopped.

*June 27th, Sunday* :—We received a visit from a Norwegian vessel, the “Lofoten,” commanded by Captain Sverdrup, ex-captain of the “Fram,” who accompanied Dr. Nansen on his recent expedition to the polar regions.

Among the passengers on board this vessel was Stadling, one of the members of the Andrée expedition last year, and already known to the reader. He will remain with us henceforth, but there being no room on board the “Svensksund,” Stadling will take up his residence at Pike House.

The little sloop “Express” was returning from its voyage northwards to Mossel Bay ;

three steamers had met in Virgo Bay, and gave the place an aspect of cheerfulness and animation rarely observed there.

The "Lofoten," which had started from Hammerfest on the 23rd of June, brought us some letters and papers. Unhappily some of the Swedish journals contained the sad news of the death of Baron Dickson, the generous Mecænas of Andréé, and who, on the eve of our departure from Gothenburg, entertained all the members of the expedition and was most profuse in his words of encouragement to the bold explorers. We take this opportunity of testifying our respect for the great man, the philanthropist, the savant, snatched away from his friends before he had seen the achievement of the grand work with which he had associated his name.

Let us offer to his memory the tribute of our respectful admiration and our gratitude.

## VI.

### LAST PREPARATIONS—ANTICIPATIONS.

*June 28th* :—The balloon had now been inflated for more than 5 days; it had undergone a loss of gas which may be approximately estimated at 150 to 180 cubic metres, or a mean loss of 30 to 35 cubic metres every 24 hours. When the tests which we were making and which were to be continued as far as the equator of the balloon should be concluded, it would have become still more air-tight and the balloon would then be in excellent condition.

The “Lofoten” left us this morning at 6 o’clock, firing off four salutes from her guns, and with reiterated cheering. From the top of the balloon I watched the evolutions of the graceful vessel, as she described a parabola

round the "Svensksund"; her flags were raised and lowered, and then the "Lofoten" rapidly glided away.



VIEW OF THE BALLOON INFLATED IN THE SHED, THE NORTHEASTERN SIDE OF WHICH HAS BEEN REMOVED TO FACILITATE STARTING.

The work of looking for escapes was concluded on this day.

The cover, for protecting the balloon from snow and rain, was placed over the dome.

## 266 Last Preparations—Anticipations.

Andrée has finished adjusting the hoop to the car; the systems of pulleys, tackle, rigging attachments, etc., had all been most carefully prepared.

*June 29th.*—The hoop was then disconnected in order to be fastened to the rigging of the net. This operation being effected we fixed on this hoop, horizontally, a bamboo pole; to this mast the sails, which already hung from the ropes, were to be fixed. A system of pulleys and tackle was arranged to effect the various manipulations required between the car and the hoop.

The three guide-ropes, weighing 900 kilos, were stretched from the shore to the hoop, and also eight other cables each 70 metres long and weighing together 400 kilos. These latter, together with the guide-ropes, serve to prevent the balloon from coming too close to the earth, giving the effect of throwing out ballast to the extent of 400 kilos more than

the weight of the guide-ropes before the car could touch the ground. Under these conditions, the balloon will always keep its centre of gravity, even when exposed to a storm. The above-mentioned eight ropes serve another important purpose ; they can be used to lengthen the guide-ropes in case it should be necessary to sacrifice those parts that fix into the ground at any time during the journey. Andrée can get rid of the lower part of the guide-ropes by a screw locked by a spring which connects this part with the rest of the hoop ; a turn given from the top of the car is sufficient to start the spring and the screw. A second method consists of a dynamite explosive. This last method is preferable, for in this case, only the part connected with the ground is lost.

The storing of the car was almost finished. A number of articles of all kinds were placed in it : scientific instruments, compasses, sextants, telescopes, photographic appliances

## 268 Last Preparations—Anticipations.

and accessories ; pharmaceutical preparations, culinary articles, lamps and electric batteries, arms, ammunition, etc., etc.—no space but what is utilised or is set apart for some particular purpose, and still a large space is left for a bed and some furs.

The provisions for the expedition were unpacked and exhibited in one of the rooms of Pike House. As was the case last year, they consisted of preserved foods and wines of all kinds. Dr. Lembke superintended their storage. They were packed in labelled pockets made of strong material, joined together and laid one over another so as to form one long bag ; thirty-six similar bags containing 750 kilos of food were attached to the top of the hoop by thirty-six suspending ropes.

Andrée is taking enough for four months only. He thinks this is sufficient and that, if he should have to winter upon the ice, their arms will give them the opportunity of laying in a fresh stock of provisions. Pointing to his

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cartridges, he said, smiling, “There is some concentrated food.”

The various provisions left behind were carefully stored in Pike House ; there was a great deal, enough to feed a large party for a whole year.

Twelve remaining ropes were hung with sledges, snow-shoes, and a boat formed of a wooden frame-work that can be taken to pieces, and covered with a double covering of waterproofed material of the same nature as the envelope of the balloon. This very light boat measured 5 metres in length ; it was a marvel of skilful construction.

Every one was surprised to see the quantity of things that could be stowed away in the rigging, without causing any confusion, and arranged over the platform of the hoop, within reach.

On the hoop itself, a number of articles were placed : picks, shovels, hatchets, anchors, a little windlass, buoys, etc. All these articles

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are of bronze or copper, the hatchets having a steel blade set in copper.

Andrée takes with him 12 despatch buoys, each consisting of a sphere of cork 20 centimetres in diameter, coated with a thick coat of paint, partly blue and partly yellow, and protected by a network of copper wire. At the bottom the buoy is weighted by a cone filled with lead and this gives it the appearance of a top. At the upper portion is a copper stopper, inscribed with the words "Andrée's Polar Expedition, 1896" and a number; this stopper closes a cavity cut in the cork, to receive a tube in which will be enclosed documents or messages from the explorers. The buoy is surmounted by a spiral spring of copper supporting a little Swedish flag of thin metal.

The buoys will be thrown out at different points of the voyage of the balloon. A thirteenth, larger than the others, will be left at that point of the route that shall be the near-

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est to the geographical pole that can be reached by the balloon.

*July 1st* :—We then proceeded to estimate the ascending power of the balloon. It was calculated that it could carry 1700 kilos of ballast, including that part of the cordage intended to be used as ballast, and that it could keep up for a minimum period of 30 to 35 days. This period could be extended in case of need, by sacrificing the sails and other parts that had become useless ; the car, if necessary, and part of the guide-ropes, as the explorers could still take refuge on the hoop, to which was attached all their provisions and necessaries. In this manner nearly 800 kilos of supplementary ballast would be obtained, which would increase the length of the voyage by 20 days.

The aéronauts could thus remain in the air for more than 50 days, and, at the same time, keep their food and the necessary apparatus

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and cordage. Thus their departure would take place under most reassuring conditions.

As to the point of landing, the chances seem to point most to Siberia, which offers a very large extent of land; next in order of probability, comes Alaska, in North America. Andrée did not think that the balloon could be drawn towards Greenland, with its gigantic glaciers attaining to such great altitudes, as the surrounding lower strata of air cool rapidly by contact with this boundless frozen mass, and currents would be formed there that would radiate in all directions. Only the currents of the upper atmosphere would approach these regions; but the Andrée balloon always travels close to the earth, which is, moreover, another point in favour of its longevity. We need not fear, therefore, that the explorers will be lost in the glaciers of Greenland.

Variable winds may drive the balloon for several days over the ice-field and over the

ocean before it can meet with a spot favourable to its descent. We have already seen that it could keep up for more than 50 days; therefore, unless any serious accident or unforeseen delay occurs, there is every reason to hope that before this time the aéronauts will have set foot on some hospitable ground. If, owing to some unforeseen cause, they should be obliged to descend on the ice-field, they would have to return in the same way as did Dr. Nansen.

He, after leaving his ship, the "Fram," remained, together with Lieutenant Johannsen, for *fifteen months* on the ice-field with only *three months' provisions*.

Andrée took with him 32 carrier pigeons. We expect that some will return to Dane's Island, where they have stayed for more than a month, and that they will bring us news of our friends. But we fear that these messengers will never return to Sweden; from Spitzbergen alone they would have to travel a

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distance of nearly 2500 kilometres in order to find their dove-cot. Those set free at the Pole would therefore have to travel more than 3500 kilometres, and over the greater part of the journey they would find neither shelter nor food. Such great distances have never before, to my knowledge, been traversed by carrier pigeons, and, probably, those belonging to the expedition will not leave the balloon where they are lodged and fed, or, if they do leave it, it will be to lose themselves in the Arctic regions and there perish miserably.

Andrée told us, therefore, not to be uneasy if we received no news of him for a year, as he might descend at a spot from which communication with other countries would be difficult, which would oblige him to winter with the Lapps or Esquimaux, or in an uninhabited part, where he would be left to his own resources, and he would not then be able to return till the following year.

## VII.

### BEFORE THE DEPARTURE—WAITING FOR THE SOUTH-WIND.

*June 30th* :—Andrée assembled us together to discuss the methods to be employed for starting his balloon. One great difficulty was, how to get the balloon out of its enclosure without the silk running the risk of being damaged by the wood of the shed.

Every one gave his opinion, and from all the suggestions put forward, the following conclusions were drawn :—

(1)—All projecting parts of the shed against which the balloon might be injured should be covered with a thick pad of felt, in order to prevent any accident to the silk.

(2)—The balloon, at its equator, should be protected by wide straps, which would be

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attached to the south side of the shed, so as to prevent it rolling against the mooring-posts under the action of the wind.

(3)—The south side of the shed should be closed as high as possible and the highest floor should be provided with canvas to add to the height of the shelter ; the canvas should be stretched out only at the last moment.

(4)—For starting, the balloon should be held firmly to the ground by three cables attached to the hoop. It should be allowed to ascend to a sufficient height to allow of the car being placed in position, and then we should only have to free the balloon from its straps and cut the cables in order to set it at liberty.

Orders were then given to put into immediate execution the operations decided upon.

The carpenters at once proceeded to the supports of the shed and padded all the projecting parts inside, whilst the sailors hastened to prepare the straps and the required canvas.

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The polar balloon was soon ready to be launched into the air. Only the final operations remained to be carried out. The north side of the structure would have to be demol-



THE MEMBERS OF THE EXPEDITION.

ished, but this would not take long. Andréé having already had two floors demolished, only one remained to be removed. The ground-floor, as it was not in the way, would be left to support the structure.

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The placing of the car in position would only take a few minutes.

For the next few days we waited for the favourable wind.

Since our arrival at Spitzbergen, north-winds had been blowing continuously. We had had no breeze from the south worth mentioning ; the direction of the wind had always varied within the west-north-east sector. Andrée augured favourably from this—he hoped, and was even persuaded, that this state of affairs could not last much longer, that a change would soon take place in the atmosphere of the Arctic regions, and that south winds would prevail in their turn.

These days of waiting were very dull and monotonous : idleness made us depressed ; we sought for distractions. At meal-times, when all the members of the large family were assembled together, cheerfulness was restored, and, on the slightest excuse, we did not fail to give little entertainments, some-

times original and comic, which gave us all pleasure.

In Sweden, birthdays are always celebrated with great rejoicings, the person interested receiving presents, congratulations, etc. July 1<sup>st</sup> was the birthday of Dr. Lembke, a very genial and agreeable companion, on whom we had conferred, since our arrival at Dane's Island, the title of "King of Spitzbergen," on account of his corpulence and great stature.

We were all racking our brains to think of a present to offer his Majesty, but this was very difficult at Spitzbergen, where resources were necessarily limited. Nevertheless we made our preparations, and in the morning before our doctor was awake, each one brought his offering. Strindberg's was a royal crown made out of a piece of silk gas tubing, the upper part of which he had fashioned most artistically; Fraenkel's was a balloon of gold-beater's skin, inflated with hydrogen, and ornamented with long streamers of gay

colours ; the engineer Stake's a box of hand-kerchiefs cut out of the bands of stuff used to test the impermeability of the balloon ; another brought some eiders' eggs bearing humorous inscriptions ; lastly, boxes of chocolate, biscuits, bonbons, fruit, etc., etc., and a bouquet composed of mosses and white and violet flowers, representing all the flora of the region.

At table, the Doctor's place was decorated with a large garland of different mosses, on which were laid raisins, almonds, oranges, etc.

The offering of the gifts was a very interesting little ceremony ; each gift, more or less original, was received with good-humoured hilarity. And, in the evening, the champagne flowed merrily, to emphasise our good wishes to the "King of Spitzbergen," whose fund of amusing and funny stories seemed inexhaustible, but who asked to be allowed to resign his crown in order to pass his life more cheerfully and simply amongst his own people.

*July 5th* :—Since our arrival at Dane's Island, after the first three or four days, we had neither rain nor snow; the temperature, which varied very little, had always kept a few degrees above zero and a pleasant warmth was felt in the sun, when we were sheltered from the wind.

On this day, the change foretold by Andréé seemed to be coming, and for the first time since our arrival, it rained, and the wind blew from the south-east.

*July 6th* :—The south-wind at last, so long awaited, so ardently desired ! It blew a gale. The rain had ceased, heavy clouds were passing northwards; a few hours would be sufficient to take the explorers to their destination.

Andréé devoted himself to meteorological observations while the first preparations were being made. The gas-apparatus was set going at once to fill up the balloon.

Soon everything was ready, they were only waiting for Andrée's orders to demolish the shed. He, absorbed by his observations, was meditating and seemed undecided. He kept going from one instrument to another, taking the direction of the wind from various points, comparing this direction with that of the clouds. It seemed difficult to him to come to a decision—the barometer had fallen too rapidly. Certainly the start would have to be made during a barometric depression, but we expected it to be slow and gradual. At last, after two hours' observations, Andrée came slowly back to us to tell us the result of his researches. In a calm, firm voice, he said he should not start that day, because the wind, then very favourable, would not last long. He was very vexed, but he hoped that before long there would be other currents of air, more stable and more favourable; nevertheless, he said when once the 15th of July was past, he would start on the first opportunity,

even if the atmospheric conditions were only moderately favourable, but now he feared to compromise the success of the expedition by a premature departure.

It will be seen that Andrée combined great prudence with his scientific experience ; moreover, his predictions proved correct—the next day, the south-wind was succeeded by a north-wind and we still waited.

*July 9th* :—Bad weather, rain, and a west-wind. A Norwegian sailing vessel took refuge in our bay. It was returning from the ice-field, where the crew had been hunting seals and had killed more than 700. The sailors were engaged in cutting up the animals ; the skins were salted and the fat stored in barrels to be melted down.

*July 10th* :—The bad weather continued, with cold fogs and rain.

The “Lofoten” visited us for the second

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time with more tourists. Amongst them I was pleased to meet some friends of our family, M. and Mme. H. Vieillard, and two other French travellers, M. Obermeyer, editor of the "Figaro," and his wife. I much regretted not having time to say much to my fellow-countrymen. The "Lofoten" is engaged in a regular service between Hammerfest and Advent Bay. She had little time to spare, having extended her trip to come to Dane's Island, and could not stop more than an hour in Virgo Bay.

In the evening the sky cleared, the rain ceased, and a strong wind blew from the southwest; the barometer, which had been falling for two days, still continued to do so slowly. We now had a chance of a wind favourable to our expedition.

## VIII.

### DEPARTURE OF THE BALLOON.

*Sunday, July 11th :—*A decided south-wind. Would it last this time, or would it again prove a delusion?

Andrée and his companions consulted for some time the various instruments from each post of observation—the atmospheric conditions seemed favourable.

Together with Andrée, we went to the top of the shed to examine carefully the work that had been done, and to arrange about the preparations for starting. The wind was very violent, the wooden structure trembled under our feet. I feared sometimes that it would be blown down and the balloon destroyed, but this apparently light structure was really very solidly built, of which fact it had furnished ex-

cellent proofs. Moreover, it was sheltered by a hill 100 metres high.

After having enumerated the various operations to be performed, Andrée returned to his observations for a few minutes. The result was favourable; the direction of the wind seemed quite settled, but he did not give the order to start. This time he dared not take the sole responsibility of this decision, so he consulted his fellow-travellers. It was a very delicate question for the members staying behind, Svedenborg and myself, to decide; the decision rested rather with those directly interested. Strindberg and Fraenkel wished to start at once—and besides, what were we waiting for? Time was passing, the season was advancing, therefore, the sooner, the better.

Andrée did not express his opinion—it was not necessary; we guessed it. He was burning to set out for the conquest of the Pole, and he only said, “The departure is decided upon.”

We returned on board the "Svensksund," where the sailors in uniform, and in the presence of the officers, were attending a short religious service, after having been reviewed as usual on Sunday.

As soon as the decision was known, Captain Ehrensvärd gave orders for the whole crew to resume their working clothes immediately.

Two Norwegian sailing vessels, returning from the North, entered the bay and made ready to cast anchor opposite the shed. Signals were exchanged to ask them to take up a different position so as to leave a free passage for the Andrée balloon, which would start in a few hours.

The workers are ready, and are being taken ashore by the boats.

The carpenters and a detachment of sailors quickly go up into the shed and demolish the northern portion with surprising rapidity.

It is 11 o'clock in the morning. Andrée is

standing before the shed, observing everything ; his orders follow one another, brief and rapid ; his voice resounds, rendered still stronger by a speaking trumpet. Nothing is heard but the crackling of the wood as it is broken away, and the wooden beams as they come crashing to the ground. A detachment of men clear away the rubbish as it falls.

On the south side, at the top of the shed, sailors are stretching the canvas between the masts, thus increasing by 4 metres the height of the roof.

Everywhere is feverish activity ; the preparations go on rapidly.

We now turn our attention to the balloon, which slowly rises as the bags of ballast are slowly let down from mesh to mesh until they stop at the hoop.

The wind becomes more and more violent ; puffs reach the balloon, which sways greatly from side to side. The equatorial

straps support it well and restrain its movements.

The cords are then arranged which work the valves and the "rending flap"; these delicate parts require constant inspection during these last operations, in order to prevent their working badly. Stadling hangs over the circle, on to a horizontal rope, a series of baskets in which were the carrier pigeons. This preliminary part of the preparations being concluded, the ballast bags are withdrawn until the balloon is properly balanced. The hoop remains firmly held to the ground by three cables, long enough to enable it to rise sufficiently high for the car to be fixed in position. The rest of the ballast bags are collected into three groups hung to the hoop by three ropes.

The car is brought under, which, with all its contents, weighs nearly 500 kilogrammes. It is slipped into its place, and quickly fastened to the hoop by the six cables supporting it.

Andrée walks round the balloon and round the shed, giving a last glance at every detail, satisfying himself that everything is ready and in good working order.

The solemn hour has arrived.

Strindberg, who has always been a great friend of mine, as we have a mutual sympathy with one another, begs me to send his *fiancée* proofs of the last photographs that I shall succeed in developing, and which would interest her. He shows great emotion while speaking to me. It is not fear of the perils that he is about to face, but other sentiments that are agitating him at this moment; it is easy for me to guess what they are.

When will he see again that charming Swedish girl whose photograph he has so often shown me and which he carries next his heart?

How many days, how many months will she be anxiously waiting, and receiving no news?

What anxiety, what suspense, await that poor young girl !

But what joy will follow the glorious return of her beloved ! What firm bonds of affection will bind them together after this long, hard separation !

Oh, how I wish them this happiness with all my heart !

Greatly affected myself, I shake convulsively the hand of my friend, who is leaving all that he holds dearest in the world for the glorious accomplishment of a scientific enterprise, and with a final clasp I promise him once again that his wish would be to me a sacred duty.

He gives me a last letter for his *fiancée* ; then, controlling the emotion which was overcoming him, he rejoins Andrée and Fraenkel, who are also taking leave of their friends.

Andrée is thanking all the members of the expedition for the help they have rendered him in his enterprise. He gives the Captain

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several telegrams written in haste at the last minute ; one, addressed to the King of Sweden, is worded thus :—

“ SPITZBERGEN,

“ July 4th, 2:25 P. M.

“ At the moment of their departure, the members of the expedition to the North Pole beg your Majesty to accept their very humble salutations and the assurance of their deepest gratitude.

“ ANDRÉE.”

Another telegram, addressed to the “ *Aftonbladet*, ” Stockholm, said :—

“ In accordance with our decision previously arrived at, we commenced on Sunday at 10:45 the preparations for our ascent, and at this moment, 2:30 P. M., we are ready to start.

“ We shall probably be driven in a north-north-easterly direction ; we hope gradually to reach regions where the winds will be more favourable to us.

“ In the name of all our comrades, I send our warmest regards to our friends and to our country !

“ ANDRÉE.”

The last farewells are brief and touching. Few words are exchanged, but hearty hand-clasps between those whose hearts are in sympathy say more than words.

Suddenly Andrée snatches himself away from the embraces of his friends and takes his place on the wicker bridge of the car, from whence he calls in a firm voice :

“ *Strindberg...* *Fraenkel...* *Let us go!* ”

His two companions at once take their places beside him. Each is armed with a knife for cutting the ropes supporting the groups of ballast bags.

This being done, Captain Ehrensvärd and Lieutenants Norselius and Celsing give their sailors orders which are at once executed.

The equatorial straps fall at one stroke.

The balloon, freed from this restraint, moves slightly ; it quits the state of torpor in which it seemed to be plunged ; it now seems to have come to life, and, notwithstanding its shelter, it rolls greatly on its lower moorings, from which it tries to free itself.

We wait a few seconds, in order to seize a moment of calm before the order is given to start.

Three of the most adroit sailors, each armed with a knife, hold themselves in readiness, at a given signal, to cut the three cables by which alone the balloon is now held captive.

The entire crew of the "Svensksund" are present, and also the crews of the three Norwegian whaling vessels anchored in Virgo Bay.

There is profound silence at this moment ; we only hear the whistling of the wind through the wood-work of the shed, and the flapping of the canvas which hangs over the upper part of the south side.

Amongst the cordage of the car are seen

the three heroes, standing admirably cool and calm.

Andrée is always calm, cold and impassible ;



ON THE DECK OF THE "SVENSKSUND"—FRAENKEL, ANDRÉE,  
SVEDENBORG AND STRINDBERG.

not a trace of emotion is visible on his countenance, nothing but an expression of firm resolution and an indomitable will.

He is just the man for such an enterprise, and he is well seconded by his two companions.

At length the decisive moment arrives :

*“One! . . . Two! . . . Cut!”* cries Andrée, in Swedish.

The three sailors obey the order simultaneously, and in one second the aërial ship, free and unfettered, rises majestically into space, saluted with our heartiest cheers.

We rush to the doors to get out of the shed. I have the chance of getting out first through a secret opening I have made in the wood-work, so as to be able to rush to my photographic apparatus and have time to take a few snapshots at this stupendous moment.

Being encumbered with the heavy cordage that it takes with it, the balloon does not rise to a height of 100 metres.

It is dragged by the wind.

Behind the mountain that is sheltering us, rage storms of wind, and a current of air

sweeps down from the summit and attacks the balloon, which for a moment descends



M. K. FRAENKEL

rapidly towards the sea. This incident, which we had foreseen before the departure, but the

natural cause of which struck few of the spectators at the moment, produces great excitement amongst some of us ; the sailors rush to the boats to be ready to lend assistance to the explorers, whom they expect to see engulfed in the waves. Their alarm was of short duration ; the descending movement soon becomes more gentle, and the car just touches the water and ascends again immediately.

Unfortunately, the lower parts of the guide-ropes, which were made so as to become detached if they should be caught in the ground, have remained on the shore ; at the start the ropes were caught in some rocks on the shore and the screws for separating the parts worked. But André is well provided against this loss, so that this accident is not likely to have serious consequences.

At the edge of the water, on the beach bristling with rocks and large stones, we all stand, breathlessly watching the various phases rapidly following one upon another,



VIEW OF THE BALLOON TAKEN IMMEDIATELY AFTER ITS DEPARTURE.



of the commencement of this stirring and unprecedented aërial journey.

The balloon, which has now righted itself at about 50 metres above the sea, is rapidly speeding away ; the guide-ropes glide over the water, making a very perceptible wake, which is visible from its starting-point, like the track made by a ship. The state of affairs seems to us on the shore to be the best that could be hoped for. We exchange last signals of farewell with our friends ; hats and handkerchiefs are waved frantically.

Soon we can no longer distinguish the aéronauts, but we can see that they are arranging their sails, as these latter are displayed in succession on their bamboo mast ; then we observe a change of direction. The balloon is now travelling straight to the north. It goes along swiftly, notwithstanding the resistance that must be offered by the dragging ropes ; we estimate its speed at from 30 to 35 kilometres an hour. If it keeps up this initial

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speed and the same direction, it will reach the Pole in less than two days.



**M. A. MACHURON.**

The aërial globe seems now no bigger than an egg. On the horizon an obstacle appears

in the route. This is the prolongation of a chain of mountains about 100 metres high right in the path of the balloon, which seems very close to the obstacle, and some of the sailors round me, who have never before seen a balloon start on its trip, seem in great terror ; they think the balloon will be hopelessly wrecked. I reassure them, telling them that the balloon is still far away from the hills, which will be easily surmounted, without there even being any necessity to throw out ballast.

The balloon travels on, maintained at the same altitude by the guide-ropes. In the neighbourhood of the hills there is an upward current of air. The balloon will follow this ; it would only risk striking against the obstacle if the movement was downwards, which is not the case. Moreover, the guide-ropes first rest upon the rocks and thus lighten the balloon which gradually rises.

We see it clear the top of the hill, and stand out clearly for a few minutes against

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the blue sky, and then slowly disappear from our view behind the hill.

Scattered along the shore, we stand motionless, with full hearts and anxious eyes, gazing at the silent horizon.

For one moment then, between two hills we perceive a grey speck over the sea, very very far away, and then it finally disappears.

The way to the Pole is clear, no more obstacles to encounter—the sea, the ice-field and the UNKNOWN !

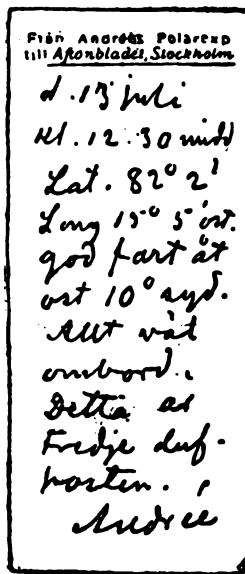
We look at one another for a moment, stupefied. Instinctively we draw together without saying a word. There is nothing, nothing whatever in the distance to tell us where our friends are—they are now shrouded in mystery.

Farewell, heroic scientists ! Our most fervent prayers go with you. May God help you ! Honour and glory to your names.

ALEXIS MACHURON.

## A MESSAGE FROM ANDRÉE.

A message from Andrée has been forwarded to us showing the progress made by the hardy explorer. We reproduce it.



## TRANSLATION.

"ANDRÉE POLAR EXPEDITION,  
"TO THE *Aftonbladet*, STOCKHOLM.

"July 13th, 12:30 p. m.,  $82^{\circ} 2'$  north latitude,

26087 309

15° 5' east longitude. Good journey eastwards, 10° south. All goes well on board  
This is the fourth message sent by pigeon.

"ANDRÉE."



*Collected*

## ANDRÉE'S BALLOON EXPEDITION.

### IN SEARCH OF :: THE NORTH POLE.

By HENRI LACHAMBRE and ALEXIS MACHURON.

The authors are the experts in aërostatics who accompanied Andrée to Spitzbergen, and saw him sail through the air into the unknown.

Complete particulars regarding the construction and equipment of the balloon are given, together with all the details of the preparation for the start, and the circumstances surrounding the latter itself.

The description of the departure of the three heroes is thrilling and dramatic. Should Andrée never return, this volume will prove a permanent record of all that can be known regarding his daring attempt, unless other explorers should find records or relics of his expedition.

The volume also contains a detailed account of the first attempt in 1896, when Andrée and his two companions could not start on account of the bad weather. A brief biography of the brave explorer is also given.

This work is published simultaneously in four languages, and is illustrated by more than fifty engravings after photographs taken during the time of preparation, and at the time of start. It contains a fac-simile of the message received from Andrée after the balloon had sailed some distance northward.

12mo, cloth, \$1.50.

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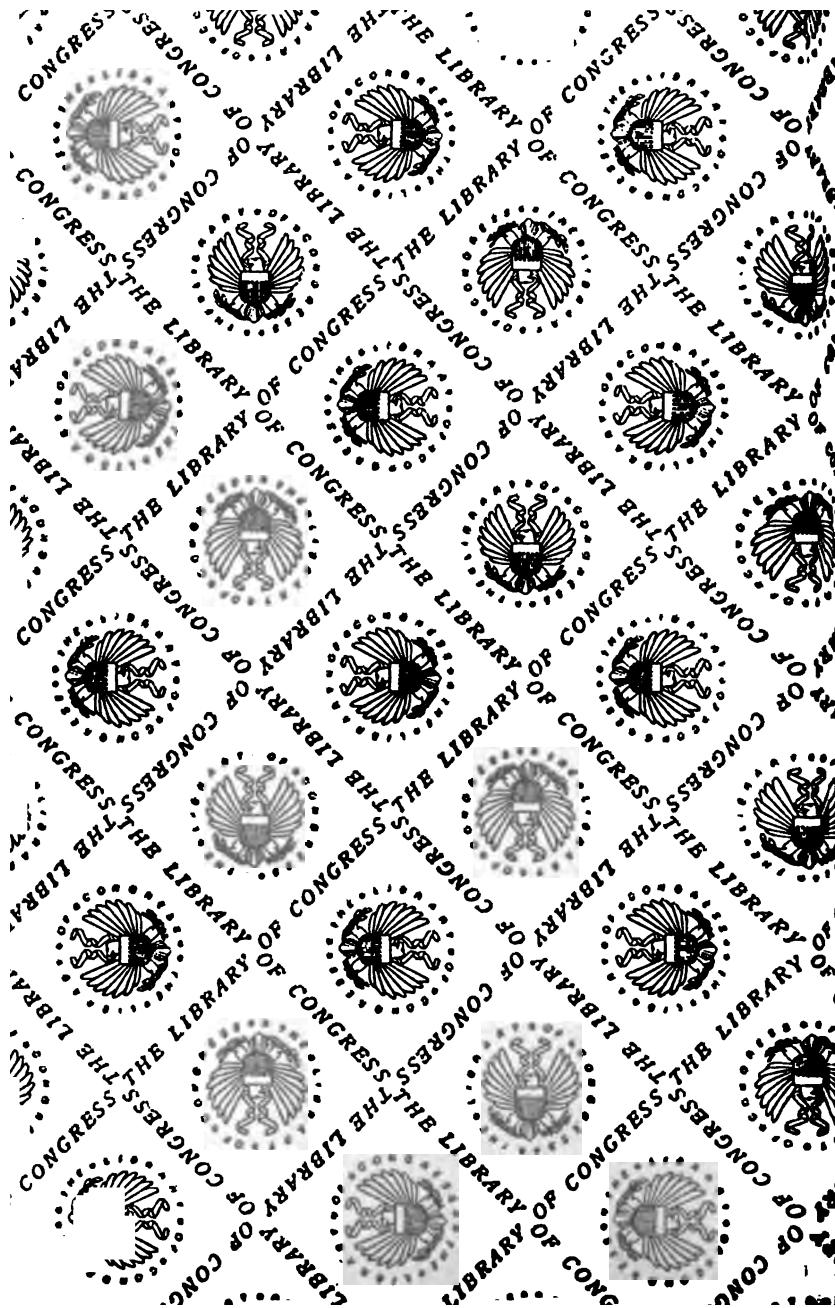
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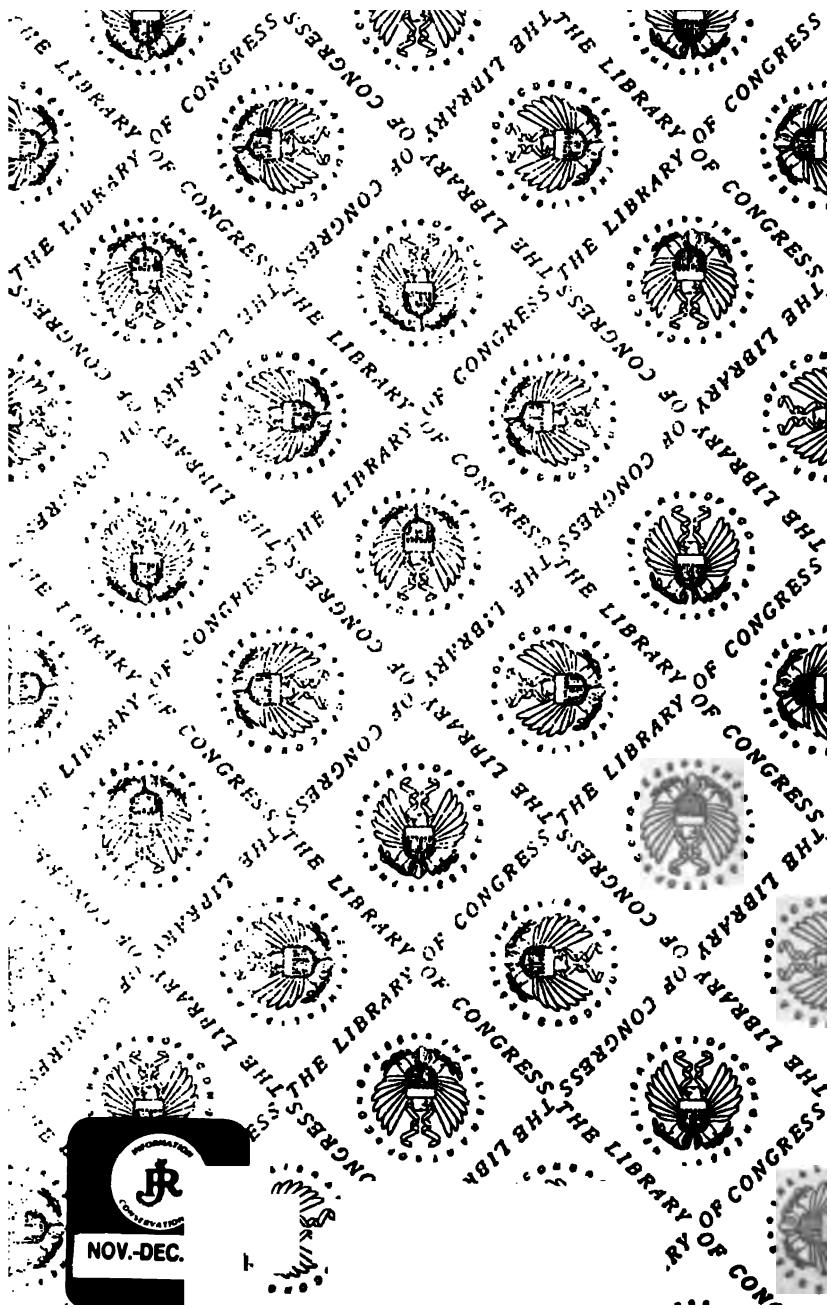
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